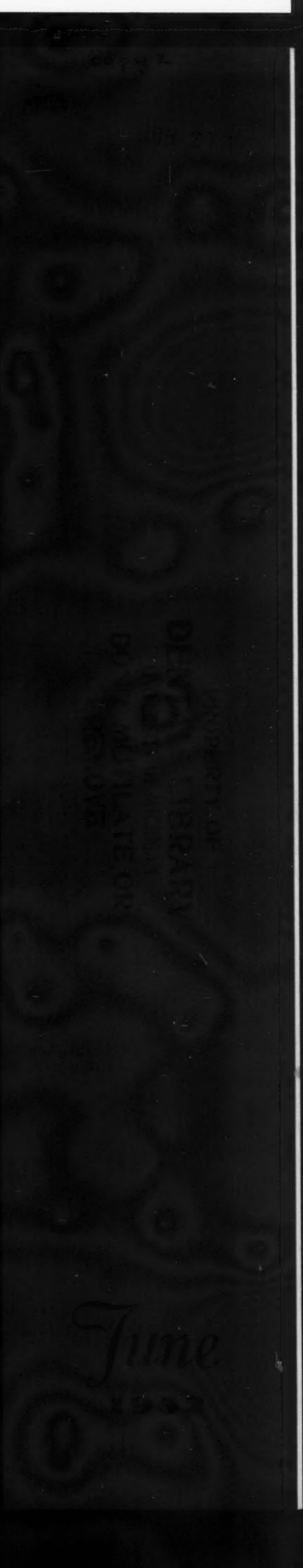
The DENTAL DIGEST



These suggestions will increase the natural beauty of Hecolite dentures

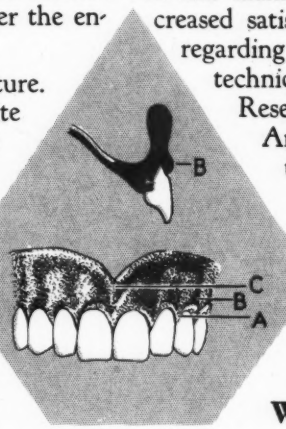
● Not only does Hecolite provide you with the means of giving lasting satisfaction to your denture wearing patients, but the inherent quality and stability of the material also allows you to provide artificial dentures that are more natural in appearance and expression. As an aid in securing these desired effects, the following suggestions will prove helpful.

A very pleasing effect can be obtained by stippling Hecolite. This is a very simple procedure and is accomplished by the use of a large round bur, or plug finishing bur, that has been bent in the shank to make it slightly off center. Hold the denture lightly against the bur and work it over the entire gum section of the denture.

After stippling, varnish the entire denture, including the tissue side, with Hecolite Repair Solution, applied with a small cotton pellet. This gives a lustrous gloss over the entire denture and seals the surface which to a large degree, will prevent tobacco stains from working into the material.

A more natural effect can be obtained with Hecolite, by allowing the material to fill the interdental spaces, as shown in "A" below. Make the juncture of Hecolite and the necks of the teeth come to an abrupt angle with the chisel as in "B." Then round with polishing buff and pumice and a pleasing, natural reflection is obtained when the saliva moistens the gums.

The extra time taken to finish Hecolite dentures in this manner will more than repay in the increased satisfaction of your patients. Questions regarding this or any other phase of Hecolite technique will be gladly answered by our Research and Technical department. American Hecolite Denture Corporation, 94 East Sixth Street, Portland, Oregon. New York Sales Office. 41 Union Square West.



A *Allow Hecolite to fill the interdental spaces.*

B *Make junction of Hecolite and necks of teeth come to an abrupt angle with the chisel.*

C *A labial frenum gives a more natural expression to the lips.*

YOU DON'T EXPERIMENT WHEN YOU USE HECOLITE

The DENTAL DIGEST

VOLUME 38 — *June, 1932* — NUMBER 6

My Ideal Dentist - - - - - - - - - - - - - 202
John W. Schaefle

The Editor's Page - - - - - - - - - - - - 205

Rebasing or Duplicating Dentures: A Method of Restoring Facial Contour and Correcting Faulty Retention - - - 206
Bert L. Hooper, D.D.S.

A Technique for Gold Inlays - - - - - - - - - 214
Leo S. Seidner, D.D.S.

Common Sense about Heart Disease - - - - - - - 220
Olga S. Hansen, M.D., F.A.C.P.

A Restraining Apron for Use in Nitrous Oxide Anesthesia - 224
J. B. Lazare, D.D.S.

Dental Assistants and Secretaries - - - - - - - - 226
Elsie Grey

Letters - - - - - - - - - - - - - - - - 232

About Our Contributors - - - - - - - - - - - 234

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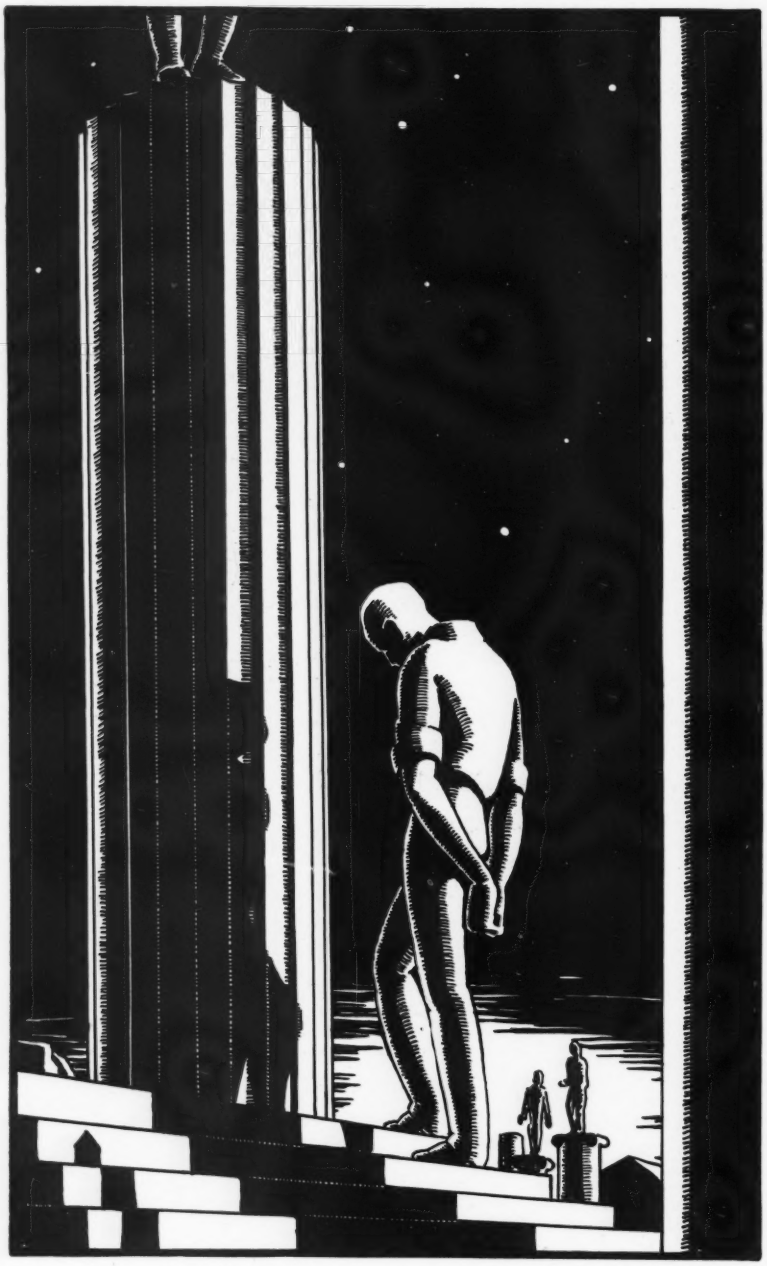
MY IDEAL DENTIST

JOHN W. SCHAEFLE
(Illustrations by Melville Steinfels)
Chicago

A RECENT President of the United States explained in his autobiography that one of the real dangers of the office lay in the fact that the incumbent might easily succumb to the impression that his judgment was infallible. So much deference was shown in all of his goings and comings, purely out of respect to the office, that he might easily err in attributing the pomp and show to some heroic quality within himself.



". . . I have placed him, from my very youth, upon a traditional pedestal . . ."

The foregoing may likewise be true of the three professions: medicine, dentistry, law. This has its advantages and, as in the case of the presidency, its disadvantages. The rightness of due respect for the professions, I grant without reserve. The advantages thus accruing to the professional person need no emphasis through repetition. Some disadvantages, in one or two respects, are to be dealt with in this article.

By way of explanation, I, being a person of average intelligence, confess at the outset a certain hesitancy in approaching the tents of the mighty—to express freely and frankly my opinions regarding my dentist, and my attitudes toward him. You see, I have placed him from my very youth upon a traditional pedestal, and this attitude of mine restrains me. This attitude has, of necessity, been imparted to him. That, may I be so bold to remark, is a disadvantage to him. True, he has a knowledge and training not mine. I am at his mercy in times of tribulation and pain. He alleviates my pain, and corrects a condition which, without him, might become a source of concern, if not jeopardy. In the fulfillment of his duty, the dentist may become imbued with a sense of undue importance which, in turn, might result in a careless attitude. And therein lies a danger—a danger alike for my dentist and for me.

But let us proceed bravely. I have been asked to discuss my ideal dentist. I have been asked to forget, for an instant, my traditional layman's reserve, and remember the purposes to which my dentist has dedicated his life. I have been asked to lay before you candidly and without equivocation whatever qualities I expect in my dentist. I have been assured that it will be of immense practical value to the profession—this looking at its members critically. I have been told that just as the President is apt to become warped in his judgments and in consequence overestimate the importance of certain phases of his personality not associated with his office, so the dentist is likely to forget that

he is a human being dealing with other human beings. And because it is not simple to look upon oneself with a detached and unbiased point of view, it is well to see oneself through the eyes of another.

It is needless to say that in describing my ideal dentist, I am concerned, first of all, with myself and that part of me with which he is to exercise his professional skill. My teeth are instruments of extreme importance to me. Aside from serving me in properly treating my food, they add to my appearance, and either are comfortable, or can become extremely annoying. Nature, having replaced a temporary set, gave her second set sufficient permanence to serve me for the remainder of my days, provided it is given the proper care. Once gone, they are, as some would have us believe is the case with the "good old days," gone forever.

A second important consideration imposes itself upon my thought in connection with my teeth. Whereas a wound, or bruise, or broken bone will, with proper attention, heal through naturally operative bodily functions, a decaying tooth threatens its own destruction, while Nature stands by quite helpless. I am told that Nature sets up defensive walls, but does not and cannot rebuild. Yes, as Charles Lamb remarked to his medical friend, often Nature "has helped you at a dead lift, and how much better entitled she is to a fee than yourself sometimes, when you carry off the credit." Not so my dentist. He works his magic; magic, for such at times it seems to be, with little, if any, aid from Nature. And no one escapes him; no one resorts to palliatives for the healing of a decaying tooth, as might be the case with an aching head; no one is so thoughtless as to overlook the essential services of this profession. Nature herself must depend upon dentistry for a healthy mouth.

Therefore, I insist that the first qualification sought in my ideal dentist will be that he recognize, in a thorough-going, unhurried fashion, the importance of his job as he is called upon to meet one after another of his patients. I would have him shirk his duties toward none of them. I mean to imply by that, that I would not have the dentist more important than his work. I would have him experience a deep awareness of the priceless nature of the teeth he treats—to be profoundly cognizant of the responsibility that is his. Into whatever paths his treatment would lead, I would not have him give temporary relief to my feelings if thereby he invites a danger that lurks inherently in the near or distant future. I believe that pain—some pain—is part of the dental experience. It is what an earth induction compass might be to the flyer in the fog. It gives him the key to many a situation while I, with a patient's restlessness, cringe and grip the arms of the chair. Nevertheless, knowing the inevitability of some pain in dentistry, I shall ask that my ideal dentist hurt me if he must, but be mindful always of what is good for my teeth which are priceless and perishable in character.

I would ask that my dentist have a wide and cultured outlook upon life. I would ask that he enjoy, at times, a sunset, rain, and, assuredly, children, and the common things of good life. May I emphasize the importance of this sympathetic and understanding attitude toward children? Such an outlook would naturally be followed by a reciprocal attitude on the part of the future patrons of dentistry toward the profession. It would seem desirable to

". . . It is not simple to look upon oneself with a detached and unbiased point of view . . ."

grasp the opportunity for these worth while contacts. True progress in dentistry, it would seem, depends upon the education and training of the growing generation. I would be interested to know that the dentist reads about his own profession, of course, but also about government, business, philosophy, and fiction. I am not asking that these be his interests because, in particular, they are my interests. It is not that I would care to enter into lengthy discussions with him before and after my appointments. It would seem to me to be an indication, however, that there is something of the student in the man whose interests are varied. It implies that probably the man, in addition to knowing the subject to which he has devoted the studies of his life, may have something of an inquiring mind. He may, with that inquiring mind, be able to assist himself in the treatment of my teeth through daring attempts in the face of unexpected conditions, which would often result in success. It would seem to me that such a mind, having been a student, would continue to be a student. Graduation would mark merely a commencement, to my ideal dentist, of a life of endless and interesting search into the means of making humanity happier through the preservation of dental health.

I would ask that my dentist be serious-minded. There are some, I believe, who are of the opinion that a well-turned joke will, at the proper time, cause one to forget pain. My ideal dentist may leave the dissemination of good fun to the copy of *Life* or *Judge* which invariably lies upon his reception room table. I do not visit my dentist to learn the latest current Hollywood divorce news, nor to be entertained with the last of the Ford jokes, nor to be embarrassed with something a bit off-color. The last by no means. I ask that my dentist be clean of mind. At the first indication of an unclean mind, I know that I would be tempted to view with some suspicion the towel he places about my neck; I would try to steal a glance at the finger-tips of the man who will shortly be probing my mouth, and to give an appraising and silent inspection to the instruments lying in wait for his use. Yes, I would insist that my dentist be clean of mind and of body. I would dislike particularly to find the dentist in the condition of the shoemaker's children, with worn and disreputable shoes. Unclean, uncared-for teeth in my ideal dentist; but perhaps such an inconsistency does not exist.

I would ask that my dentist have a keen sense of personal integrity. I would ask that he have a strong moral sense of what is right and what is wrong. I would little care to find myself seated in a dental chair and have suddenly pass through my mind a question, a feeling of apprehension, as to whether or not the man actually felt certain that the cavity being sealed in so business-like a fashion should really be sealed. Stretched out, in that somewhat helpless condition with mouth open, I want to experience an almost childlike faith in the man who, behind me, is busily engaged in mixing his cement or burnishing the inlay. While dentistry is his means of earning a livelihood for himself and those dependent upon him, it would be gratifying to know that he places his love of work about the fee he charges. I would want to know that his work was based upon the exigencies of the condition, as well as the efficacy of the treatment, rather than the fee, or several fees, which a variation in treatment might produce. In short, it is only through a strong personal belief in his honesty that I can entrust so precious a part of me to the dentist.

May I not add an incidental remark to the effect that my dentist need never "sell" his services? He need not sell me an inlay, the need for which he alone is the competent judge. And as for advertising, I shall choose my dentist by reference, not by agate lines or bold-faced type and pictured plates or advertised painless extractions. No technique of merchandising, as I understand the term, will ever influence me in so vital a selection as my dentist.

In conclusion, it would seem that I have not been exacting in my demands—particularly in consideration of the importance I attach to the job to be done. I do not believe that I have asked more than one would like to expect from a good citizen. I further believe that my demands are sufficiently reasonable as to be within the bounds of achievement by the average American dentist. I do not suppose that my expectations are very far removed from or higher than the expectations of the average person who today seeks the dentist's services. The conscious effort to attain these qualifications would, I feel sure, result in a more interesting contact with the public, a more genuine and hearty response from patients, as well as more continuous, generous, and satisfying fees.

"I would ask that he enjoy, at times, a sunset, rain . . ."

The Editor's Page

"NO report can rise above the level of the facts upon which it is based, the method of their selection, and the fairness of their interpretation." With these words Simons and Sinai, the authors of *The Way of Health Insurance* (University of Chicago Press), begin the introduction to their important work. Throughout the entire book this calm, detached, scientific manner prevails. The purpose, and it is ably accomplished, is neither to attack nor to defend the institution of health insurance. The historic facts are presented; the advantages and disadvantages of the various systems of health insurance are stated; the possible evolutionary pattern in the United States is suggested. The book is not propaganda for or against. In fact, it is no propaganda at all, but a carefully documented statement of facts.

It is a safe prediction to say that wherever health insurance is discussed among dentists, physicians, social workers, or men in public life, this book will take an important place in the discussion. This work describes the functioning of the European health insurance systems with particular emphasis on the way in which they affect the professions. The professional point of view is recognized. Incidentally, it is quite conceivable that a similar study done by or for an insurance company would present another kind of picture. Dentists and physicians who are interested in the way of health insurance as it might influence their professional lives should read this splendid contribution made by the Committee on the Study of Dental Practice and financed by the American College of Dentists.

Probably no subject that confronts the profession is more widely talked about and so little understood as health insurance, which, under the hideous names of "state dentistry" and "panel dentistry," puts a kind of terror in every dentist's mind. Sickness or health insurance, however, "is not 'state medicine,' since the physicians and dentists in insurance are not government employees; nor is the system administered by government officials; nor does it obtain its main support from taxation." Likewise, the term "panel dentistry" is a misnomer. There is no "panel" of dentists in any of the health insurance systems. In the British system any registered dentist upon presentation of a "dental letter" from an insurance society may give dental care to a patient under the terms and conditions of the insurance regulation. The patient has a free choice of dentists. The dentist has a free choice of patients; that is, he may give dental care to an insurance patient or refuse him treatment. The system, in some cases apparently, is not so disastrous to individualism and freedom of enterprise as we often have been urged to believe.

Health insurance is one aspect of social insurance which is intended to relieve the sickness hazards of poverty from the low-wage group. Hand in hand with health insurance are three other forms of social protection: unemployment insurance, old age pension, and workmen's compensation. The agitation for health insurance did not originate with the medical profession in Europe; in fact, in the early years of the systems the profession vigorously opposed the project. From two sources we observe the development of the idea: first, from office holders and statesmen who recognized the political significance of a program for the relief of economic distress; second, from social workers who saw sickness as one of the causes of poverty and conceived of insurance as the only budgetary method whereby the low-income group could meet the economic crises of ill health.

Briefly, the costs of insurance are paid by employers, employees, and by the state. The funds are administered by insurance societies operating under the supervision of the government. The fees for professional care are paid by the insurance societies. Benefits in sickness are of two kinds: cash and services, with a growing tendency to eliminate the cash benefits. In the early years of the systems insurance was voluntary, but the development shows a steady movement toward compulsory insurance. Not all persons are eligible for benefits. Germany includes workers receiving less than $858 annually; France, from $588 to $705; Great Britain, $1,215; Norway, $1,600.

Before we take any inflexible or prejudiced attitude on the subject of health insurance we should remember that "a purely negative policy always fails."

REBASING OR DUPLICATING DENTURES: A METHOD OF RESTORING FACIAL CONTOUR AND CORRECTING FAULTY RETENTION

BERT L. HOOPER, D.D.S.
Lincoln, Nebraska

TWO factors are uppermost in the minds of most denture patients or those about to become edentulous. One factor is an age-old problem which heritage or hearsay has designated in the public mind as "the fit"; dentists call it retention. Another factor which is vital to the patient is facial appearance. Through the varied educational agencies the public is becoming "tooth-minded" and is critical about facial expression and the health of the mouth.

With present-day methods of taking impressions and balancing occlusion, stability of dentures is a comparatively easy matter to accomplish, and patients may be assured of satisfactory retention of the new dentures. There is, however, an element, over which dentists have little control, which is a menace to the retention of dentures. Resorption of the process that forms the foundation or support for the denture is the insidious enemy that alters the shape of the mouth tissues, impairing, if not completely destroying, the retention or stability of the denture.

With the advent of natural appearing base materials and artificial teeth that accurately simulate natural teeth in shadings and molds, and with the newer methods for recording natural facial dimensions and contour, dentures are being made that deceive the most critical eye; and, in this regard also, patients may be assured that dentures will not change their facial personality.

Resorption is a menace. The shrinking or changing of the ridges and tissues allows the jaws to come closer together, thus inviting wrinkles and sagging facial muscles. Facial dimensions are altered and an unduly aged appearance creeps upon the person.

It is the responsibility of the dental profession to inform denture patients what resorption is, how it affects the stability of dentures, and its result on facial expression. It is also the responsibility of the dental profession to supply a means of restoring retention and correcting facial dimensions with as little inconvenience to the patient as possible. This calls for periodic rebuilding of the denture in order to duplicate the original retention and the original facial contour. The accompanying series of profiles (Figs. 1, 2, 3, and 4) shows the facial changes brought about by resorption and the improvements made possible by rebuilding the dentures.

Thousands of patients are wearing dentures unaware that changes are taking place which can and should be corrected, because their dentists have failed to explain to them what must be expected in this regard. Patients are willing, and even anxious, to obtain periodic restorative service to retain these factors and characteristics that are so vital to their comfort and happiness. The value to the profession is second only to the value of such service to the patient.

In the management of cases in which it is necessary to rebase or duplicate the dentures, it is assumed that in the original construction of the dentures the appearance of the natural dentition was restored, as well as the natural facial dimensions and expression. It is, then, desirable to retain the teeth in the same relative position to one another and to substitute bases to restore the lost facial dimensions.

Impression Technique for Duplicating a Maxillary Denture

1. After the denture is washed free from mucus and débris, the inner surface is dried and a bead of a proprietary stick compound (heated in an alcohol flame) is applied to the entire ridge portion (Fig. 5).

2. With the compound heated to a moldable consistency, the denture is seated in the mouth, and the patient is instructed to close against the opposing denture, exerting a firm pressure. This will give the results shown in Fig. 6.

If the teeth are too long for correct facial expression, the compound is warmed again and the denture is reseated while the patient exerts more pressure until the desired position is obtained. Should the teeth be too short to build up the facial dimensions, more compound should be added to the ridge portion, warmed, and reseated in the mouth, the patient being cautioned to close slowly. When the correct length is obtained, the denture is removed and the compound chilled thoroughly.

The compound throughout the extent of the ridge proper should now show evidence of detail and accurate adaptation.

3. To perfect the peripheral adaptation for valve seal, compound is added to the periphery of the denture (Fig. 7). This is accomplished by applying the compound to separate portions of the periphery at a step. When there is no protrusion of the ridge in the anterior region, a third of the periphery may be cared for at each step (Fig. 8 A).

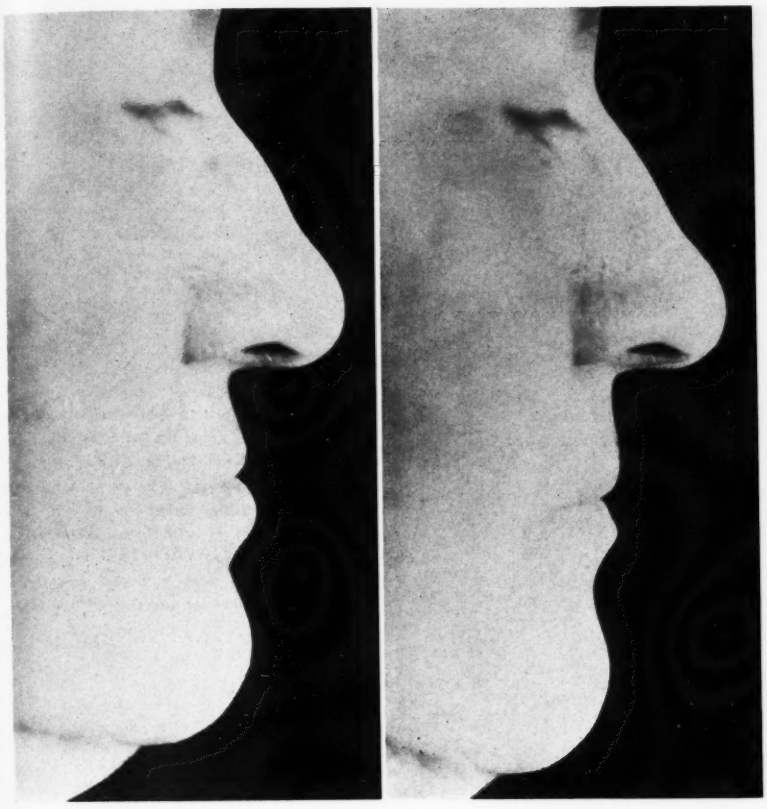
A protruded denture may necessitate caring for smaller portions of the periphery at each application, as illustrated in Fig. 8 B.

Compound is applied on the first area (Fig. 8 A), warmed to a moldable consistency, and tempered in warm water. The denture is inserted in the mouth, pressure being applied with the fingers upward, backward, and slightly to the side on which the moldable compound is located. At the same time, the cheeks and lips are pulled to muscle trim the area.

The second area, or the periphery on the opposite side of the denture, is similarly treated and the result should resemble Fig. 9.

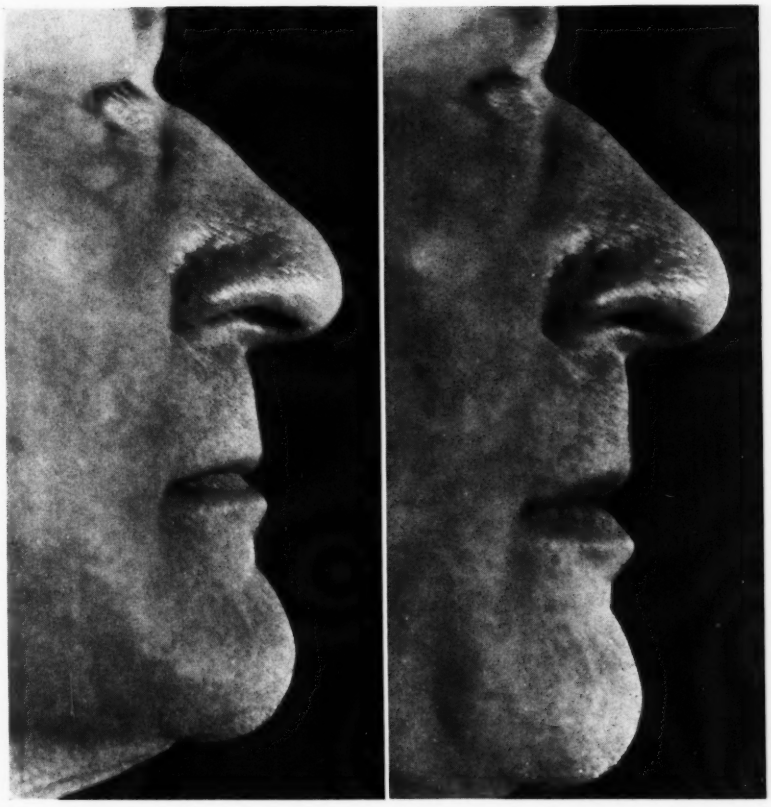
Compound is placed on the posterior border, as shown in Fig. 10, so as to contact the junction of the hard and soft palates when seated in the mouth. After insertion in the mouth, the impression appears as shown in Fig. 11. This completes the correction of the peripheral adaptation, and the denture should now have a firm

(Text continued on page 212)



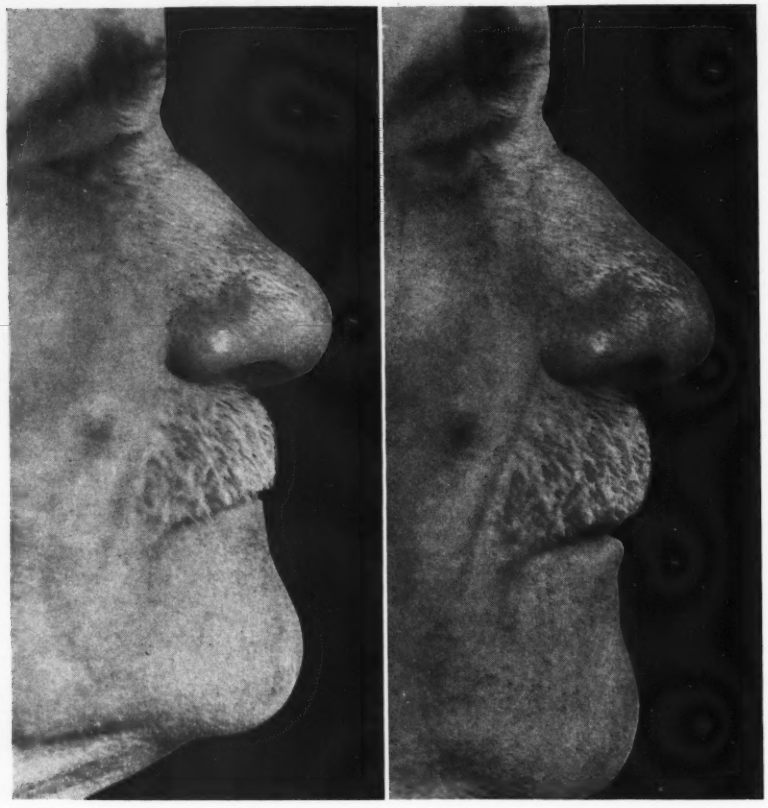
A B

Fig. 1—A, Resorption has caused loss of facial expression. Note lips forced together, protruded chin, rigid expression. B, Rebuilt dentures restore natural facial contour. Note reposed position of chin, normal lip contour, and pleasant facial expression.



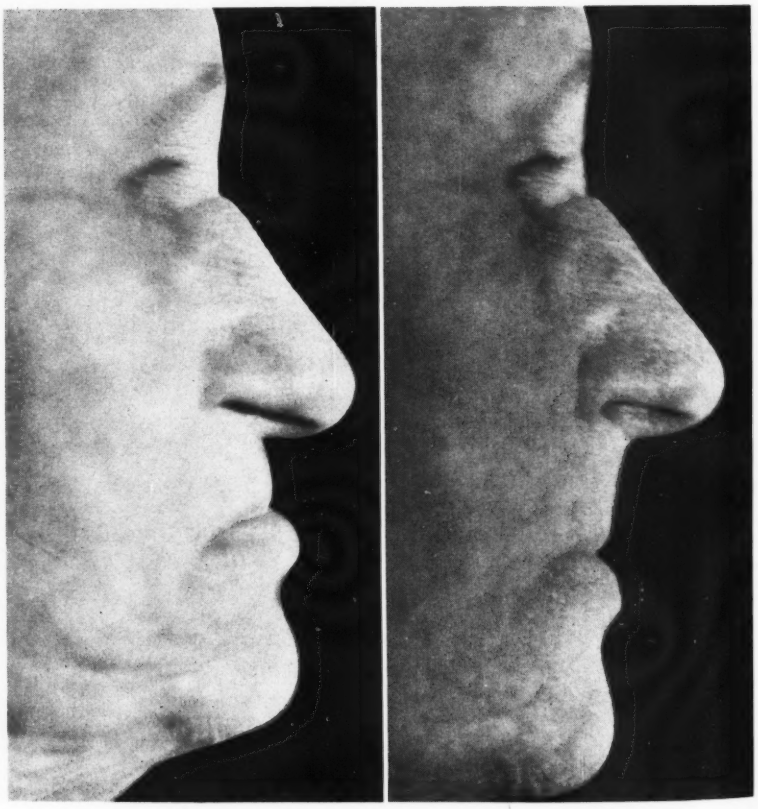
A B

Fig. 2—A, Altered facial personality due to resorption. Note the crowded, thick, protruded lips, and the shortened facial dimension. B, Duplicating the dentures corrects the facial dimensions, softens the angle where the lower lip turns out over the chin, and relaxes the severity of the protruded lips.



A B

Fig. 3—A, Shortened relation between maxilla and mandible as a result of resorption. Note the absence of the vermillion border of the lips, the grouchy expression, the tenseness of the neck muscles. B, Normal facial balance restored by duplicating dentures. Note lip outline, more peaceful expression, and relaxation of muscles of the neck.



A B

Fig. 4—A, Resorption over a period of years altered this patient's personality almost beyond possible restoration. Note extreme protrusion of both jaws, the crowded upper lip, and the abnormal position of the base of the nose. B, Improved facial expression as the result of rebuilding dentures. Note the difference in facial dimension and the normal position of the nose and lips. A thin upper lip, as compared with the lower, was characteristic of this patient in youth, hence the receded appearance even after reconstruction of dentures.

Fig. 5—Cross section of an upper denture, showing first step in impression technique for duplicating. Compound is placed throughout the entire ridge portion.

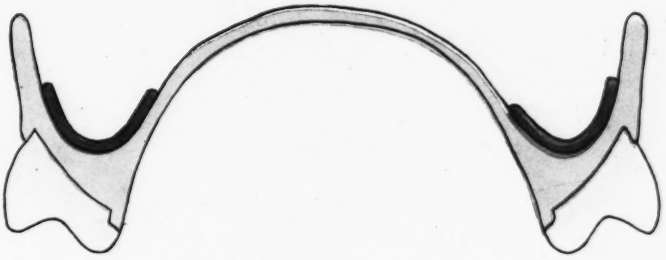


Fig. 6—Appearance after denture is seated in mouth.

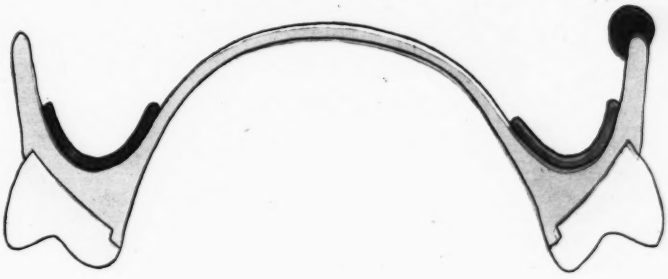


Fig. 7—Compound is placed on periphery to perfect adaptation for valve seal.

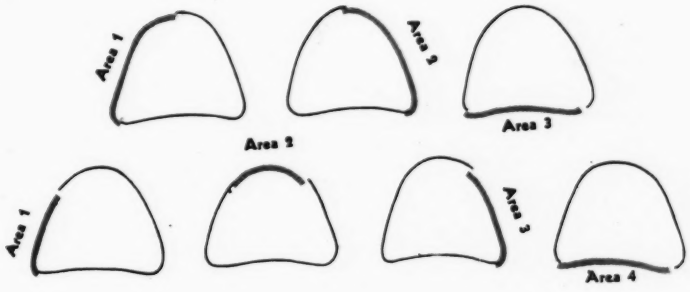


Fig. 8—A, Correction of peripheral adaptation is accomplished in three steps, first over area 1, then over area 2, and last over area 3. B, If the anterior portion of the ridge protrudes, it is better to accomplish correction of peripheral adaptation in four steps.

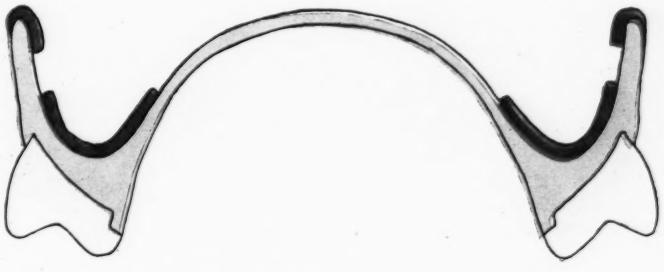


Fig. 9—Cross section showing impression completed in ridge portion and peripheral adaptation completed.

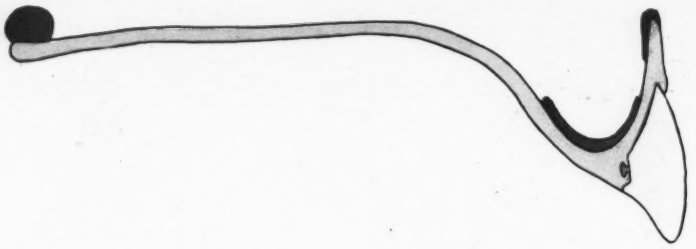


Fig. 10—Compound is placed on posterior border so as to contact the junction of the soft and hard palates when inserted in the mouth.

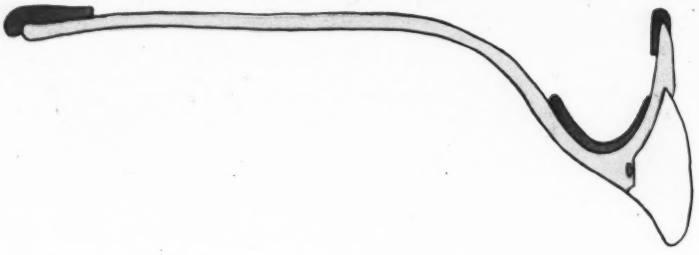
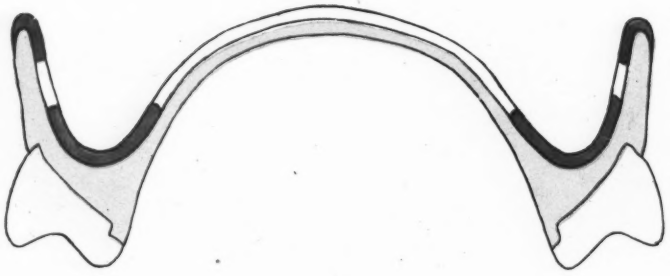
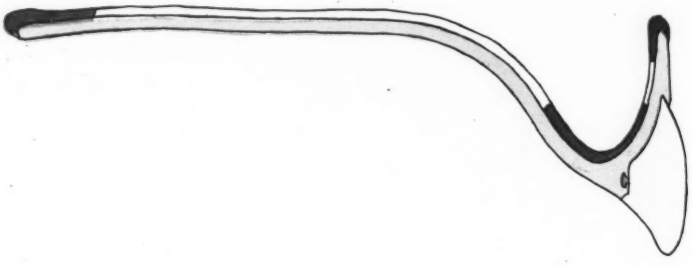


Fig. 11—Completed compound portion of the impression.



Figs. 12 and 13—A plaster wash completes the impression.



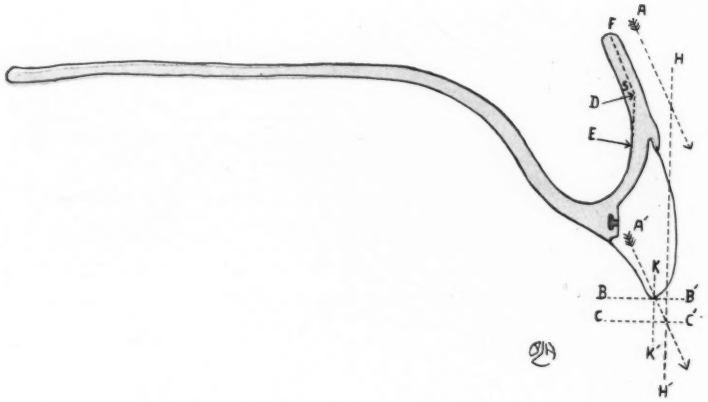


Fig. 14—Diagrammatic illustration of hypothetical case of extreme protrusion, showing preparation of denture.

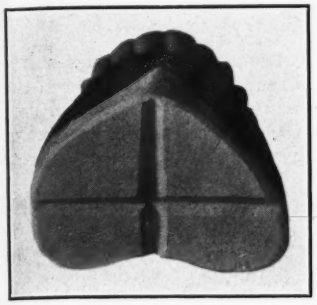


Fig. 15—Grooves are cut in base of cast before mounting.

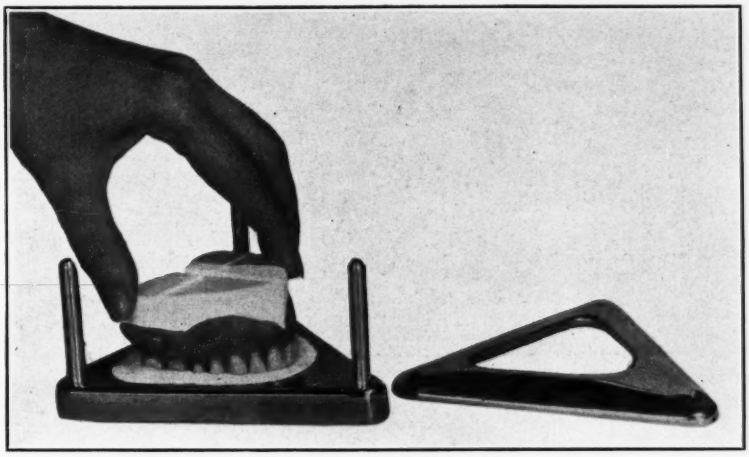


Fig. 16—Occlusal surfaces of teeth embedded in plaster on lower arm of duplicator.

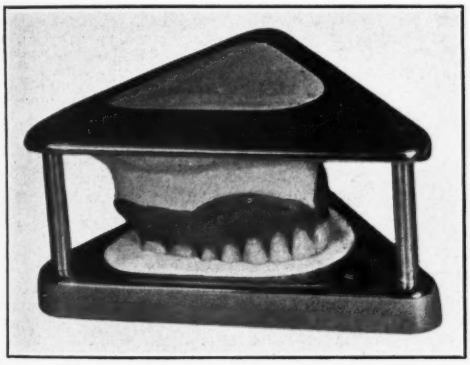


Fig. 17—Upper arm of duplicator seated accurately on the three supports and the cast mounted with plaster of Paris.

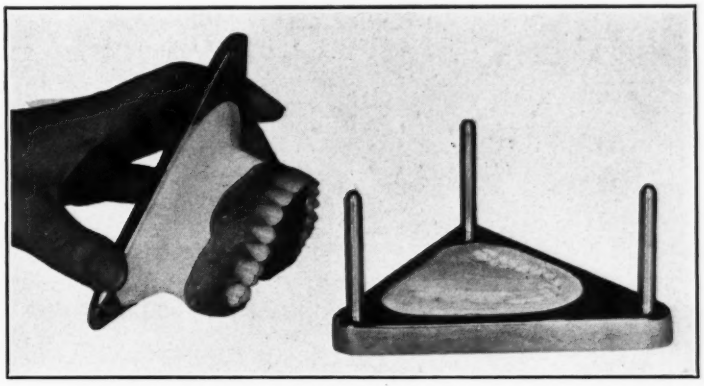


Fig. 18—Upper arm should be carefully removed with cast and denture attached.

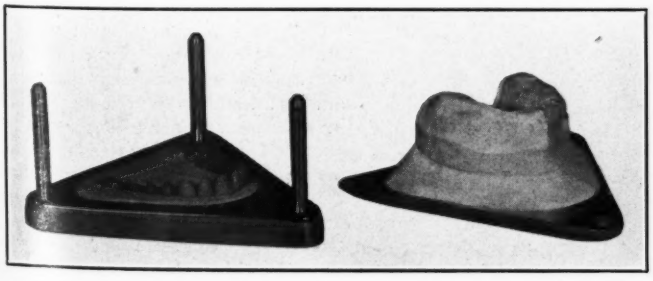


Fig. 19—The porcelain teeth are removed from the denture base and inserted in respective indentations in the plaster on lower arm of duplicator.

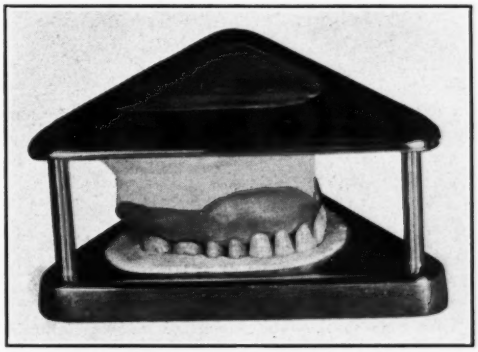


Fig. 20—Wax base plate is adapted to cast, the upper arm reseated, and the porcelain teeth luted to wax base.

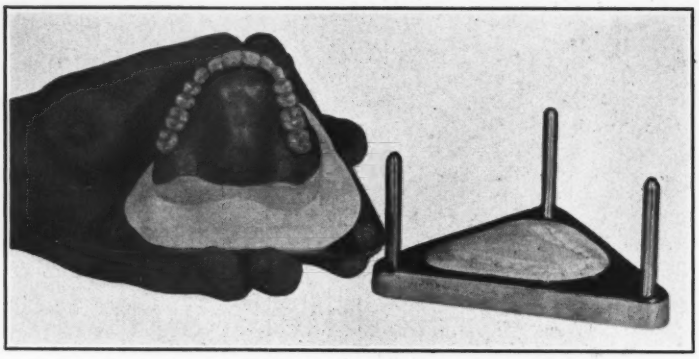


Fig. 21—Complete waxing of denture.

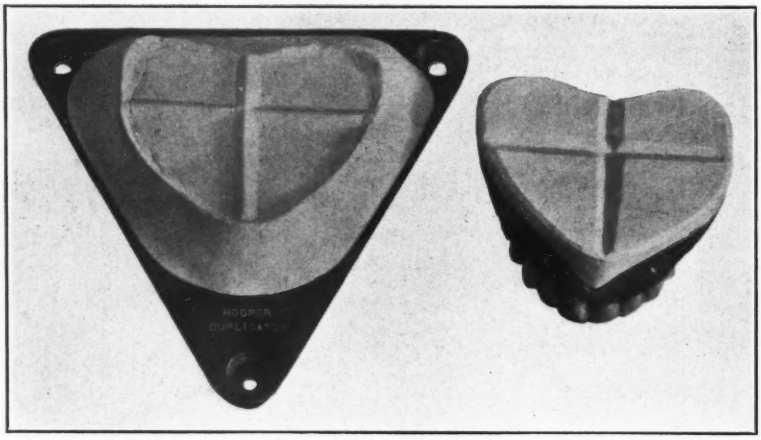


Fig. 22—Cast is removed from upper arm to prepare for flasking.

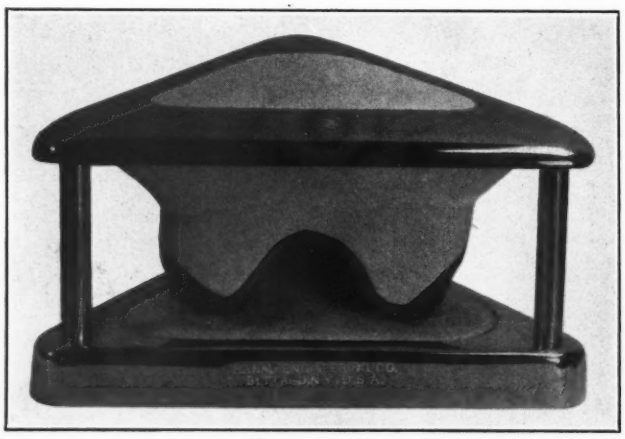


Fig. 23—After the denture has been vulcanized, cured, or pressed, according to the requirements of the base material, it should be possible to reseat accurately on the duplicator. The tops of the posts are flush with the upper surface of the upper arm, thus indicating the accuracy of the whole procedure.

(Text continued from page 206)

seating on the stress-bearing areas of the ridge, as well as a complete valve seal.

4. A plaster wash impression is then taken to fill in the areas between the ridge and periphery applications of compound. When this is accomplished, the result should be similar to Figs. 12 and 13.

The impression is now treated with separating varnishes. The cast is poured and prepared for mounting on the duplicator.

How to Overcome Error That Might Occur When a Protrusion is Present

When the denture is being built to the desired length to restore facial expression there is the danger that the denture may be thrown into a protrusive relationship with the lower, thus losing proper occlusal contact and giving an unnatural fullness to the upper lip. There should be no difficulty, however, if proper diagnosis is made and the necessary preparation of the denture is anticipated.

Fig. 14 shows the type of case referred to, and the dotted lines explain why an error occurs. In this hypothetical case, it is evident that, as the denture is brought occlusal-wise in an attempt to lengthen the facial dimension, the direction of the movement must be parallel with arrows *A* and *A′*. This movement causes a protrusive position. In the case illustrated, it was desirable to lengthen the denture 2 mm., or the distance from line *B B′* to line *C C′*. In bringing the denture down, it must necessarily move forward from *K K′* to *H H′*, thus throwing the denture in that much error.

To overcome this forward movement, it is necessary to make provision for the denture to move occlusal-wise without the added anterior movement. This is done by cutting enough of the base away, as shown by section *S*, bounded by the dotted line *F E* in Fig. 14.

If the cut is made along line *D E* to a slightly greater length than the denture is to move downward, and if sufficient material is cut out along line *F D* so as to permit the use of compound for peripheral adaptation, there is no danger of a protrusive error, unless one is careless in not observing correct occlusion and position. It takes far less time to cut this portion out with a large vulcanite bur than to read this explanation of the technique.

After this preliminary preparation, the impression is taken as previously

described, and the cast is poured in preparation for the remaining procedures.

Mounting Denture and Resetting Teeth

1. Before the denture is mounted on a duplicator, grooves are cut in the cast, as illustrated in Fig. 15.

2. Plaster is now poured in the lower arm of the duplicator, and the occlusal surfaces of the teeth are embedded in the plaster to about one third of the length of the tooth (Fig. 16).

3. After separating medium is applied to the grooved surface of the cast, the upper arm of the duplicator is positioned accurately on the three posts, and the cast is mounted to the upper arm with plaster of Paris (Fig. 17).

4. The plaster is allowed to set firmly; then the upper arm of the instrument is removed with the cast attached, leaving indentations of the occlusal surfaces of the teeth in the plaster on the lower arm (Fig. 18).

5. Great care should be exercised in removing the denture from the cast, especially if any undercuts are present. The teeth are loosened from the denture base, cleaned carefully, and placed in their respective indentations in the plaster on the lower arm of the instrument (Fig. 19).

If it seems advisable to scrape the cast to allow additional pressure at the posterior border, or if relief over any hard areas is indicated, such treatment should be cared for at this time.

6. After a wax base plate is adapted to the cast, the upper arm is reseated on the three supports. One should make certain that the supports are flush with the upper surface of the upper arm (Fig. 20). In order to insure accurate seating without displacing any of the porcelain teeth on the lower arm, it sometimes is necessary to thin the wax base plate or remove areas of it at the point of contact.

7. In luting the teeth to the wax base, small pieces of cold wax should be filled in where the space permits to avoid the use of too great an amount of hot wax, which, as a result of contraction on cooling, might disarrange the porcelain teeth.

8. When removed from the flask, the cast is preserved. The grooves previously made in the cast permit the denture to be replaced in its original position on the duplicator (Fig. 23). Its accurate reseating on the three posts designates the accuracy of the whole procedure from the impression to the finished denture. The bite cannot have been changed; the relation between the cast and the teeth is intact; hence, the relation of the teeth to the ridge is identical.

Errors often occur when an articulator is used for the mounting of the denture. This happens because the joints are worn or inaccurate, or because some adjustment of the articulator is accidentally changed.

The seating of the two arms of the duplicator is positive, and may be relied on for accuracy. A denture thus cared for should go to place in the mouth exactly as intended when the impression was taken.

(End of First Installment)

Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress, of August 24, 1912

Of The Dental Digest
at Pittsburgh, Penna.

Published monthly
For April 1, 1932

State of Pennsylvania, } ss.
County of Allegheny, }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared M. B. Massol, who, having been duly sworn according to law, deposes and says that he is the Publisher of The Dental Digest, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of—	*Post office address—*
Publisher, M. B. Massol	1117 Wolfendale St., Pittsburgh, Pa.
Editor, E. J. Ryan, B.S., D.D.S.	1218 Pratt Blvd., Chicago, Ill.
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Business Manager, J. J. Downes	1117 Wolfendale St., Pittsburgh, Pa.

2. That the owners are:

Dental Digest, Inc.	1125 Wolfendale St., Pittsburgh, Pa.
Oral Hygiene, Inc.	1117 Wolfendale St., Pittsburgh, Pa.
M. B. Massol	1117 Wolfendale St., Pittsburgh, Pa.
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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

M. B. Massol, *Publisher*

Sworn to and subscribed before me this 31st day of March, 1932.

E. G. Burgdorf, Notary Public

[seal]

(My commission expires March 6, 1935)

A TECHNIQUE FOR GOLD INLAYS

LEO S. SEIDNER, D.D.S.
Chicago

WITHOUT intending to minimize the value of compensating for shrinkage of gold in casting, I believe that cavity preparation and impression taking are perhaps of greater importance as factors in the production of accurately fitting gold inlays and their allied restorations. Better inlays can be made by any of the old methods in which cavity preparation is followed with scientific accuracy, and in which an impression that is an exact duplicate of the cavity outline is obtained, than can be made by compensating for shrinkage of gold by any technique in vogue at the present time which does not sufficiently stress two essential factors: namely, cavity preparation and the taking of an impression.

At present many exaggerations are resorted to by the proponents of various techniques that are supposed to have for their purpose compensation for the shrinkage of gold and for the volumetric changes waxes are said to undergo when transferred from mouth to room temperature. The means generally employed is a water bath of a certain temperature in which the invested pattern is immersed and in which the expansion of the wax pattern is obtained during the setting process of the investment. If one considers that the wax pattern is a frail object and sensitive to changes of temperature, it is difficult to comprehend the logic employed to bring about uniform dimensional expansion without warpage and distortion. These techniques also fail to take into consideration that the wax pattern, consisting in shape and form of sections that vary in their dimensional bulk, could hardly be expected to respond in synchrony to the application of a uniform temperature. Overexpansion, which may be nothing but warpage and which is far less desirable than underexpansion, is often the outcome of such a technique.

The technique described in this paper involves simply the use of an inner and outer investment which, when brought to a red heat temperature, expand sufficiently to compensate (1) for the dimensional shortages as a result of shrinkage of gold in casting, and (2) for the changes of inlay wax when subjected to varying temperatures. Mason's inner and outer investments are used.

Cavity Preparation

The accompanying illustrations of plaster of Paris models show in order the consecutive steps of cavity preparation, which when followed will prove simple and adaptable, and assure good results.

1. The contact point is cut through with a lightning disc. The space between the tooth being prepared and the neighboring tooth is widened (Fig. 1) with a porcelain-cutting paper disc to provide ample room to prevent injury to the neighboring tooth and also to facilitate approximal box preparation.

2. With a small knife-edged stone in straight or contra-angle handpiece (Fig. 2) a mesio-distal occlusal groove is made to the depth of the dentin and extending beyond the marginal ridge of the slice.

3. A vertical groove is made, with a crosscut fissure bur of suitable size, at about the middle, between the buccal and lingual walls of the slice, extending gingivally almost to the gum line. With a larger bur the groove is widened somewhat, bucco-lingually.

4. With an inverted cone bur the buccal and lingual walls are undermined (Fig. 4). With a sharp chisel of suitable size, the overhang thus created is broken down to the depth of the undermined walls (Fig. 5). This process of undermining and chiseling is repeated until the proximal box has been extended buccally and lingually to points of extension for prevention. The buccal and lingual walls are completed by the use of porcelain-cutting paper discs (Fig. 6). The walls are flared outward buccally and lingually, a long bevel being accomplished.

The approximal box when viewed gingivally should present a wedge-shaped hollow. The buccal and lingual walls converge slightly at the gingival seat, and diverge at the opening or at the occlusal. The axial wall inclines occlusally. The approximal box is fully completed before proceeding with the preparation of the occlusal box, as is shown in Fig. 7.

5. The same principle of cavity preparation used in the approximal box is followed in preparing the occlusal box. The buccal and lingual walls are undermined with an inverted cone bur. With a sharp chisel the overhang is broken down. The undermining and chiseling are repeated until the box has been extended bucco-lingually to the desired points to conform with the design for resistance to known stresses of dislodgment, and should include all grooves, pits, and fissures, and other susceptible areas. The cavosurface walls and margins are now finished with a small, mounted, tapered or straight, sharp stone (Fig. 8), and the cavoangles are accentuated with chisels and fissure bur.

Cavity Toilet

A pellet of cotton held between plier points and dipped into tincture of green soap is used to clean the cavity. The cavity is rinsed with warm water.

Wax Impression

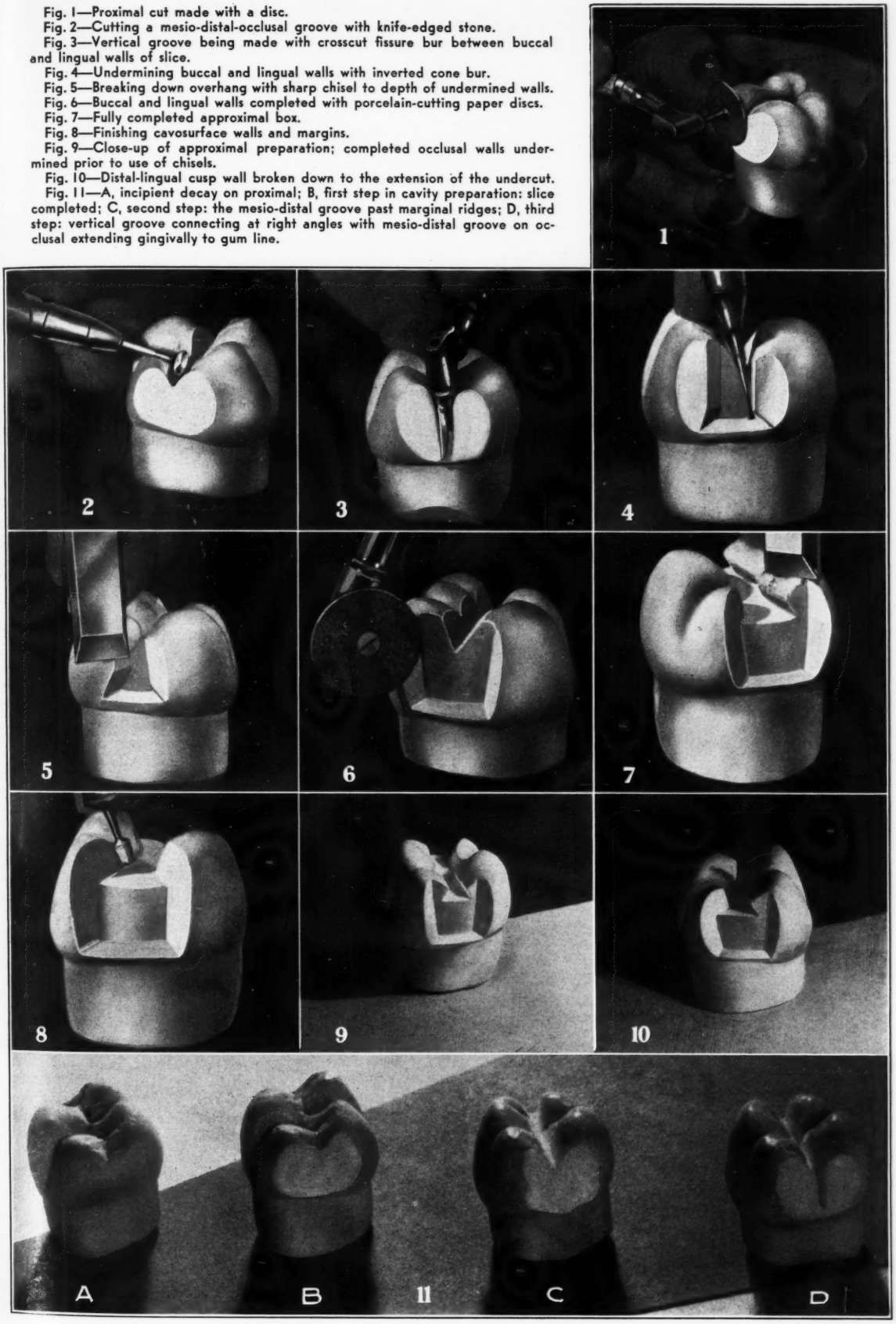
Equipment—(1) Matrix band material; (2) Ivory matrix retainer; (3) inlay wax; (4) linen strips.

Procedure—1. A strip of the banding material is cut to the height and length of the tooth. The band should not extend beyond cusp height except where cusps are to be restored. The matrix should be loose around the tooth to allow plenty of room for excess wax and the restoration of anatomic form in the pattern. A wax should be chosen of a known definite expansion coefficient and volumetric consistency.

2. The wax is heated over a dry flame to a consistency plastic enough to flow under yet offering some resistance to pressure. The wax is packed into the matrix to capacity.

3. The side of the wax within the matrix to be brought into contact with the tooth (Fig. 9) is heated again and placed over the tooth. The matrix band is forced into place until the lower edge of the band reaches

Fig. 1—Proximal cut made with a disc.
Fig. 2—Cutting a mesio-distal-occlusal groove with knife-edged stone.
Fig. 3—Vertical groove being made with crosscut fissure bur between buccal and lingual walls of slice.
Fig. 4—Undermining buccal and lingual walls with inverted cone bur.
Fig. 5—Breaking down overhang with sharp chisel to depth of undermined walls.
Fig. 6—Buccal and lingual walls completed with porcelain-cutting paper discs.
Fig. 7—Fully completed approximal box.
Fig. 8—Finishing cavosurface walls and margins.
Fig. 9—Close-up of approximal preparation; completed occlusal walls undermined prior to use of chisels.
Fig. 10—Distal-lingual cusp wall broken down to the extension of the undercut.
Fig. 11—A, incipient decay on proximal; B, first step in cavity preparation: slice completed; C, second step: the mesio-distal groove past marginal ridges; D, third step: vertical groove connecting at right angles with mesio-distal groove on occlusal extending gingivally to gum line.



beyond the gingival line, and the band is held under pressure (Fig. 10) until cool under mouth temperature.

Do not chill with cold water.

4. The overflow of wax is trimmed from around the band; the band is released from the matrix retainer and removed from the wax. The greater bulk of excess wax is trimmed, exposing the tops of the cusps.

5. A medium width finishing strip is selected and passed through the mesial and distal contacts of the tooth. Both ends of the strip are gripped at either the buccal or lingual aspect with the fingers and tightened around the tooth; the wax pattern is thereby compressed around the sides while, with the finger of the other hand, the occlusal is gently but firmly borne down on, compressing the wax thoroughly into the cavity.

6. Proceed with carving and restoration of anatomic form, guarding against distortion and spreading of the proximal wings of the pattern by passing through the linen strip as before and readapting the wax pattern to the cavity.

7. Overhangs should not be allowed to remain on the pattern. A large pellet of cotton held between the fingers, or cotton wound around the point of the pliers is used to polish the pattern, burnish the margins, and remove any possible remaining overhangs. Any remaining overhangs are also removed from the gingival margins to which access is found with fine explorers.

8. With a fine explorer, the point of which is inserted into the thickest portion of the body of the pattern, or, in case of an M. O. D., into the center portion of the occlusal span, the wax pattern is withdrawn from the cavity and examined for accuracy.

Mounting the Pattern

1. The pattern is dropped into the palm of the left hand. The blunt end of the sprue pin is heated and inserted into the thickest portion of the inlay. In case of an M. O. D., it is best to insert the sprue former into the central portion of the pattern.

2. To insure against dislodgment of the pattern from the sprue pin in the process of vibrating the investment, it is best to have a little sticky wax flow around the joint of the sprue pin and pattern.

3. It is poor practice to grasp the pattern between the fingers when mounting on the sprue former. A wax pattern is a delicate object, the margins are frail, and the utmost care must be exercised to prevent distortion. The pattern should be handled as little as possible after it has been removed from the mouth.

Treatment of Wax Pattern

With tincture of green soap and a soft camel's hair brush, the pattern (Fig. 13) is gently cleaned. It is rinsed with water of room temperature, and thoroughly dried with an air syringe (Fig. 14).

Inner Investment

Equipment—(1) Small rubber mixing cup; (2) spatula; (3) distilled water (room temperature); (4) small, flat, short-bristled, medium hard brush; (5) corrugated instrument handle or vulcanite file; (6) large camel's hair brush.

Procedure—1. Enough of Mason's inner investment is added to about a teaspoonful of water in the mixing cup to make a mix of a thick, creamy consistency; the mix is spatulated thoroughly.

2. The medium hard, short-bristled, flat brush is dipped into the mixture and the pattern is carefully painted. The excess is blown off until there remains just a thin coating covering the pattern.

One should be sure that no bubbles have been incorporated.

3. More investment is added to the pattern, all margins, as well as the outer surface and sprue former, being covered to the thickness of about one-eighth inch (Fig. 15).

4. With a corrugated instrument handle or vulcanite file, the edge of the base former (Fig. 16) is gently rasped. The large, soft, camel's hair brush is dipped into the investment powder. The brush is held high over the pattern in a pencil grip, and the handle of the brush is tapped with the index finger (Fig. 17), a fine dust being allowed to fall on the wet invested pattern.

5. The powder is gently vibrated into the investment covering the pattern until moisture appears on the surface. The dusting and vibrating (Fig. 18) are repeated until upon vibration moisture no longer appears on the surface (Fig. 19).

6. The investment is allowed to set for five minutes. The ring is placed over the sprue-base former.

Fig. 20 shows the instruments used for the inner investment.

Outer Investment

1. Water is poured into the mixing bowl and outer investment of sufficient quantity to make a thick mixture, as if for a stone model, is added. The mixture is spatulated thoroughly.

2. A small portion of the investment is picked up on the tip of the spatula and wiped off on the inner edge of the ring (Fig. 21).

3. The ring and base are held between the fingers of the left hand; tapping the back of the hand against the laboratory bench will cause the investment to settle onto the bottom of the ring. Small portions at a time are added and vibrated by tapping the hand against the bench until the ring is filled (Fig. 22).

4. The investment is allowed to set for thirty minutes.

Note: *The thicker the investment, the greater is its expansion. This holds true also for the inner investment.*

Wax Elimination

Since the desired maximum amount of expansion is obtained when the ring and the investment have attained a red heat, it is necessary to employ a heater that will permit the heat to reach the ring evenly all around.

1. The ring, with the sprue-hole down, is placed on the burner under low heat for from twenty to thirty minutes.

2. The heat is increased to medium for twenty minutes more, after which the maximum amount of heat is allowed to reach the ring until the ring and investment have attained the desired red heat.

3. To determine whether a casting temperature has been reached, the laboratory may be darkened, and if the interior of the sprue-hole is lighted, the proper temperature for casting has been attained.

This investment will stand the red hot temperature for an indefinite time. If casting is not convenient, it may be done whenever ready, but the temperature must be maintained.

Casting

It is best to melt the gold in the crucible of the casting machine while the ring is allowed to remain on the heater. When the gold has become fluid, the ring should promptly be transferred from the fire to the casting machine. The gold should be heated again until it is just fluid enough to flow freely; then the casting is done.

To avoid rough castings it is essential that the gold should not be overheated. The best casting time is when the gold has just reached a state of fluidity without having attained a white heat.

Treatment of Casting

1. The ring is allowed to cool sufficiently to be picked up by hand.

2. The casting is removed from the

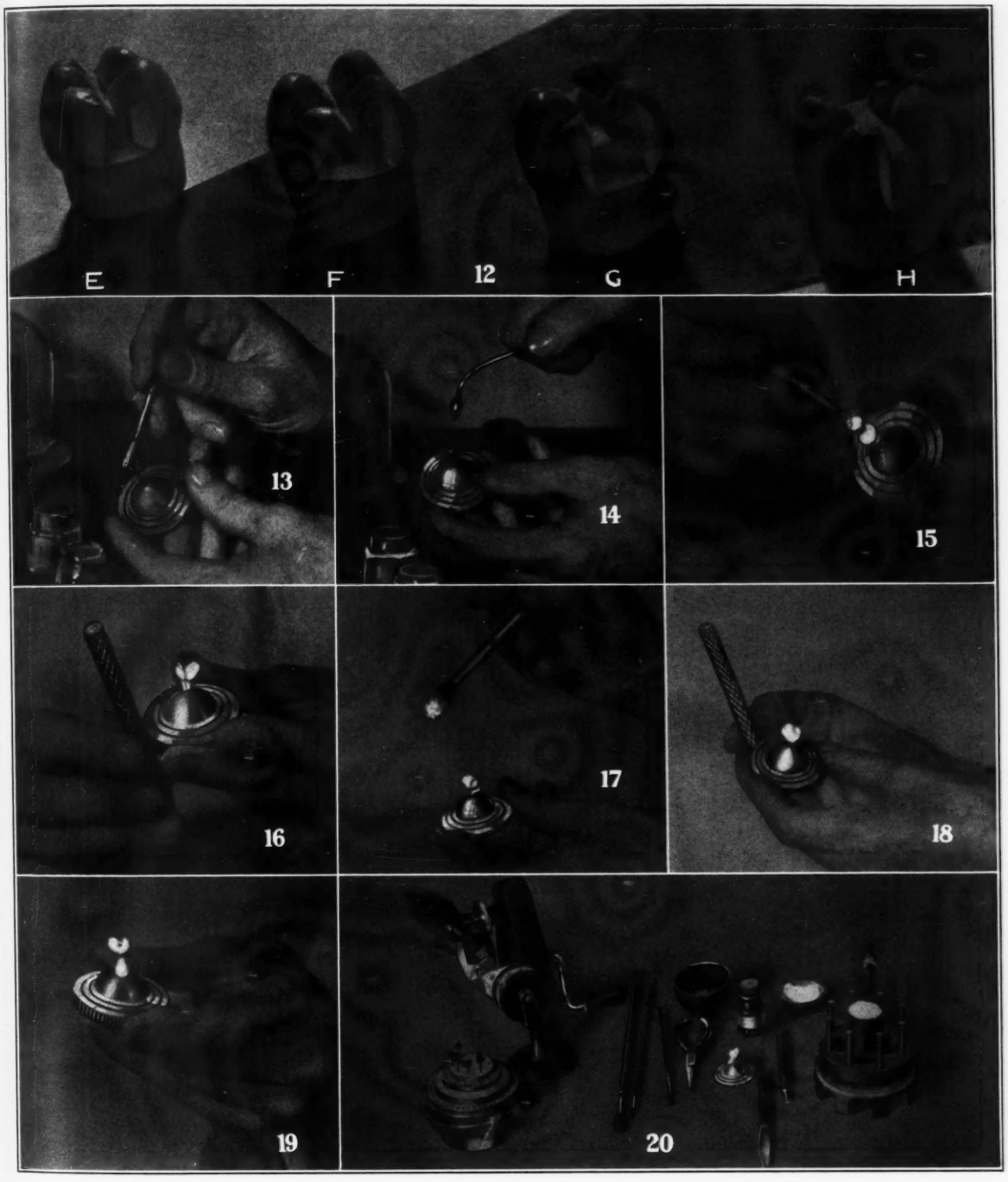


Fig. 12—E, fourth step: vertical groove widened bucco-lingually and undermined with inverted bur; F, fifth step: half completed buccal wall of proximal box completed; G, proximal box fully completed; walls flared, accomplishing a long bevel; mesio-distal groove on occlusal undermined, and the disto-lingual cusp wall broken down to the extent of the undercut; H, occluso-lingual wall chiseled down and extended to desired points lingually to be completed with stones.

Fig. 13—Cleaning pattern with tincture of green soap and camel's hair brush.

Fig. 14—Drying pattern by air.

Fig. 15—Covering pattern with investment.

Fig. 16—Rasping edge of base former with corrugated instrument handle.

Fig. 17—Dusting wet invested pattern.

Fig. 18—Successive addition of powder followed by vibration.

Fig. 19—Inner investment completed.

Fig. 20—Equipment for inner investment.

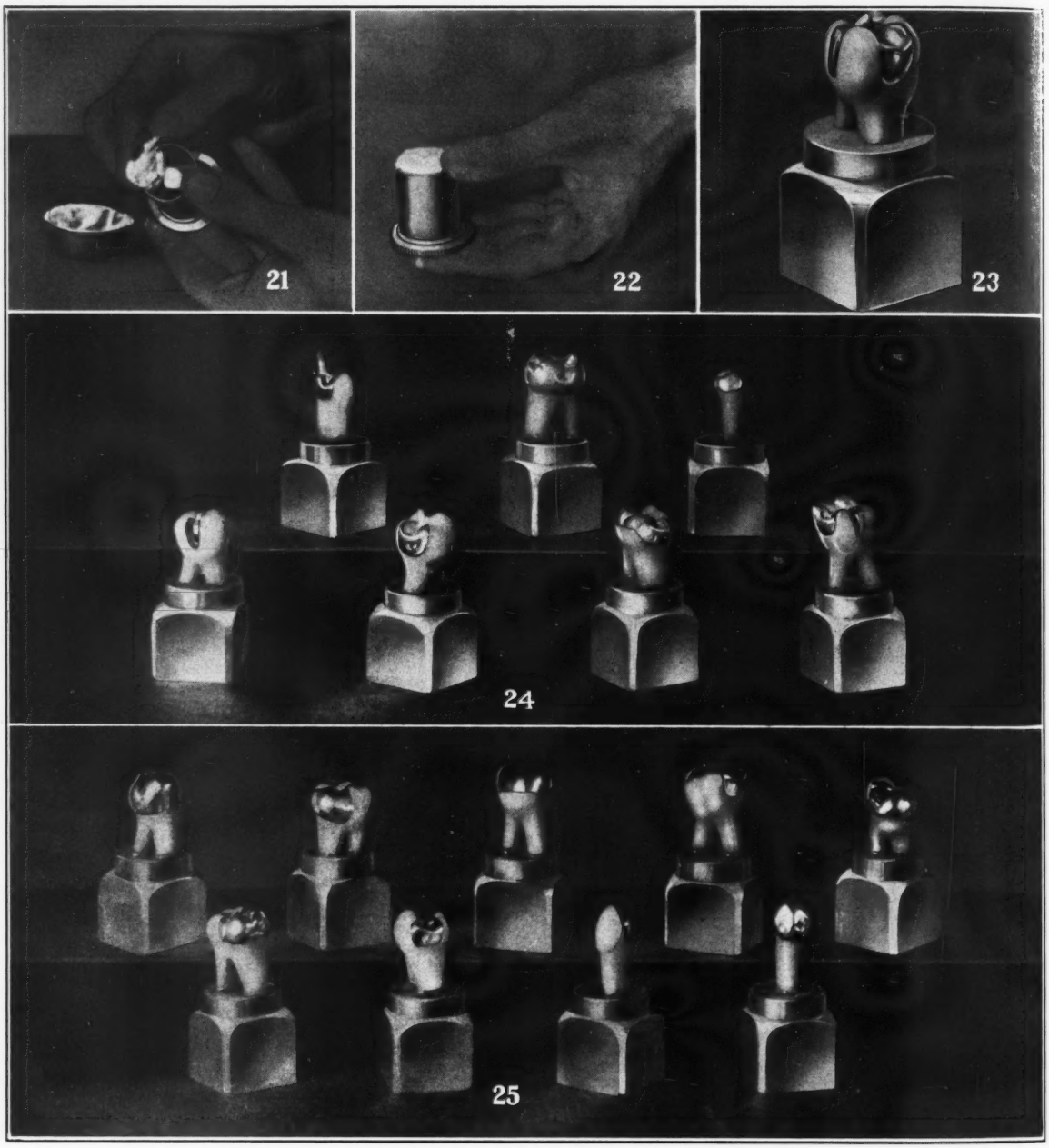


Fig. 21—Wiping off investment on inner edge of ring.

Fig. 22—Tapping back of hand against laboratory bench so that investment will settle at bottom of ring.

Fig. 23—Inlay seated in cavity.

Fig. 24—Group of castings on porcelain models in their rough state after having been removed from the pickling solution.

Fig. 25—A similar group of cast restorations in Fig. 24, from simple to complex design, including three-quarter and full crown restorations, after final polishing.

investment and scrubbed with soap and water until all investment has been cleaned off.

3. The casting is held over a flame until it is a cherry red, and is then plunged into hydrochloric acid.

4. The casting is examined for the presence of nodules. Any of the following may be the reason for rough castings:

(a) The investment was not sufficiently condensed on the pattern.

(b) In dusting the wet investment, too thick a layer of dust was allowed to settle at the start.

(c) The inner investment was mixed too thin.

(d) Frequently a long-bristled brush may result in incorporating air bubbles when painting the investment.

(e) The investment was subjected to too high heat at the start, thereby expelling the water of crystallization forcibly and causing disintegration of the investment.

Fitting Restoration

1. The casting is seated in the cavity. If an accurate impression is obtained, the casting should fit without the necessity of burnishing.

2. Fine stones and paper discs are used to dress down all accessible margins to the point of polishing. The gingival margin is dressed down outside of the mouth to a fine feather edge; the casting is then tried in the mouth, and, with a fine explorer, tested for accuracy of fit. If the point of the explorer catches at any point of the gingival line it indicates a possible overhang. Fine gingival margin files are used to remove such excesses.

3. The casting is now removed from the tooth, and the approximal surface is polished with fine, smooth paper discs, care being taken not to destroy any of the fine margins.

4. The inlay is seated back into the cavity (Fig. 23), the bite checked, and the contact determined. If there is a lack of proper contact, the point of contact should be marked by a circle with a lead pencil, and a drop of 20 or 22 karat solder flown onto it.

Care of Cavity Before Cementing

1. The tooth is isolated with cotton rolls or a rubber dam.

2. The cavity is washed with tincture of green soap, rinsed with warm water, and dried with warm air.

3. To assure sterilization prior to cementation, the cavity is painted with 95 per cent phenol on a pellet of cotton, neutralized with alcohol, and dried with warm air.

4. The casting is finally examined for any remains of investment or other foreign matter.

5. As a matter of precaution, the casting is scrubbed again with soap and water, dipped in alcohol, and thoroughly dried with a blast of warm air.

Mixing of Cement

Mixing of the cement constitutes perhaps one of the most important steps in the process of successful inlay restoration.

1. The cement should not be so thick as to prevent the inlay from being properly seated; it should be thick enough, however, to provide strength and resistance and the maximum amount of adhesion. A mix that is too thin will result in darkened tooth margins and the eventual dislodgment of the inlay owing to seepage of saliva into the cavity.

2. It is essential in mixing the cement that the powder be incorporated slowly into the liquid and each addition mixed thoroughly before more powder is added.

3. It is important that the operator thoroughly understand the specifications and the nature of the cement to be used. Manufacturers of cement will gladly submit the necessary information and describe a proper mixing technique for their particular materials.

Cementing

1. When a mix of a proper consistency has been obtained, a small portion of cement is carried into the cavity on the tip of a plastic instrument and spread evenly throughout its surfaces.

2. Another small quantity of cement is spread over the cavosurface of the inlay and seated under gentle pressure into the cavity. The pressure exerted should be continuous and increased as the inlay goes into place.

3. The excess cement as it flows out around the margins should be wiped off with the finger to make sure that the restoration has gone into place properly.

4. A blow or two with the automatic mallet is given for the final seating, and pressure is maintained until the cement shows signs of setting.

5. Sufficient time is allowed for complete setting of the cement, after which the cotton rolls are removed.

6. The patient is allowed to relax for a second before the tooth is cleaned of all excess cement.

7. A fine explorer is used to gain access to the gingival margin from which all overflow of cement is removed.

8. The polishing should be done at the subsequent sitting.

Polishing

1. A few drops of some pleasantly flavored mouth wash is poured into a small dish, and enough Bon Ami* cleanser is added to make a thick paste. Polishing is done with an engine bristle brush that is dipped into this mixture.

2. The brush should revolve in the direction of the gold margin, not against it. All accessible surfaces are thus polished.

3. For surfaces that are inaccessible with a brush, such as the gingival third of the lingual and buccal marginal surfaces, smooth paper discs, which are dipped into the Bon Ami mix, should be used instead to complete the operation.

4. To avoid destroying the anatomic carving of the restoration, felt wheels and rubber abrasive discs should not be used.

*A chemical examination of Bon Ami reveals that this product consists of quartz and feldspar (orthoclase, microcline, and plagioclase) which, if used occasionally and in small quantities for polishing gold work in the mouth, can be considered harmless to the dental tissues.

COMMON SENSE ABOUT HEART DISEASE*

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Minneapolis

ACTUAL disease of the heart, either of pericardium (covering), endocardium (lining, including valves), or myocardium (muscle), is due in general either to infections or to degenerative processes. Congenital malformations occur but are comparatively rare, and, if serious enough to give symptoms or signs, usually cause death in early life.

Processes of Heart Disease

Infectious Processes—Heart disease is only one of the manifestations of a systemic infection, probably by a streptococcus which is thought to gain entrance through infected tonsils, and may cause chorea, joint pains, and heart involvement.

1. Rheumatic fever heads the list of the infections. Even long after the attack of rheumatic fever or chorea, which has announced the presence of this type of infection, a low grade inflammation and healing with scar formation goes on throughout the body tissues.

2. Valvular disease is an end-result of an infectious process in the heart valves. It may be accompanied with leakage, known as regurgitation or insufficiency, or with partial closure or stenosis. Practically all cases of organic heart disease in persons under middle age are due to valvular infection.

3. Syphilis rather infrequently causes a chronic disease of the heart and is particularly prone to attack the walls of the aorta causing leakage of the valve, or a bulging of the aortic wall known as an aneurysm.

Degenerative Processes—Most cases of heart disease occurring at or after middle age are due to the degenerative effects of (1) high blood pressure or of (2) arteriosclerosis.

1. Hypertension, or high blood pressure, is associated with a shutting off of the blood supply in the smaller arterioles, at first by spasm and later by scar-like deposits. It causes heart disease in two ways: (a) by reducing the blood supply to the heart muscle, and (b) by requiring the heart to pump with unusual strength to force the blood through the narrowed vessels of the remainder of the body. The heart at first becomes hypertrophied in order to do its additional work, and then, as more and more of the heart muscle degenerates on account of reduced blood supply, it fails in its losing fight.

2. Arteriosclerosis, hardening of the arteries, is a normal old-age change, and begins in each person as soon as he stops growing. Thickening of the walls of the blood vessels may affect most markedly the less vitally important of the organs, or may happen to affect first and most extensively the heart, in which case the mechanism is much the same as was described for hypertension. The progress may be rapid or slow. It may take the form of (a) angina pectoris, sudden severe but transient attacks of heart pain as the result of the temporary shutting off of an area of heart muscle circulation, usually during exertion, or (b) coronary thrombosis in which there is a permanent destruction of a portion of the muscle.

A heart may be seriously impaired but still able to carry on adequate circulation for ordinary needs. It has developed strength enough to make up for the injury, and is said to be well compensated. But sooner or later it is likely to show signs of failure or decompensation. The patient gets out of breath on slight exertion at first and later develops congestion of the internal organs and swelling or dropsy of the tissues. A patient may recover repeatedly from attacks of decompensation, especially if he is comparatively young. An elderly patient with the degenerative type of heart impairment seldom recovers to his former level, but continues to show gradually increasing signs of failure. Sudden death is an extremely rare accident in the presence of rheumatic heart disease. Slow and gradual failure with death from bronchopneumonia is the rule. The patient with degenerative disease is more prone to sudden failure but is more likely to go through a long process of failure with ample warning when death is approaching.

Heart Trouble

The great bulk of patients who are conscious of their hearts and constantly concerned about them do not have heart disease, but only heart trouble, a disorder that is due to an unstable condition of the general system or the nerves. The heart is usually normal and the patient is in no danger of heart failure, either disabling or fatal. The symptoms are due to functional causes and not to organic ones, and may arise in a person otherwise stable who has suffered a severe shock from illness, fear, or worry, and disappear when he is reassured as to the organic soundness of his heart.

1. Disturbed function of the thyroid gland, particularly hyperthyroidism, causes functional heart trouble which may develop into serious and permanent heart injury.

2. Systemic infection, particularly tuberculosis, may cause palpitation and rapid heart rate. The underlying infection is serious, but the palpitation and rapid heart rate do not indicate any actual harm to the heart.

3. Severe anemia may cause functional heart symptoms which if prolonged may lead to permanent changes in the heart muscle.

Aside from these conditions the patient with a diagnosis of functional heart trouble is more likely to escape organic heart disease than the average person, for he takes better care of himself on account of the symptoms and his fears.

Symptoms referable to the circulatory system in a young person, in the absence of organic heart disease, can practically always be considered unimportant. The same symptoms coming on at middle age in a person previously free from them often indicate the development of degenerative disease in the blood vessels, particularly of the heart.

Effort syndrome or neurocirculatory asthenia is the name applied to a set of symptoms, including among others rapid heart rate, palpitation (consciousness of heart beat), and pain over the heart (precordium) after excitement, exertion, and fatigue. There is no evidence of disease of the heart, but the patient is handicapped seriously by his symptomatic ailment, although it never shortens his life.

Symptoms and Their Significance

Symptoms are the patient's own account of abnormal feelings, and are likely to come in groups, and not

*(Adapted from *The Journal of the American Dental Hygienists' Association*, Vol. 5, No. 11.)

singly. The duration, severity, and onset of symptoms and the patient's manner of telling them indicate to a large extent whether he has a serious heart condition or not. A woman may have a heart murmur, wholly unimportant and associated with a perfectly compensated heart, but one that she has been told about by examining physicians. She is ready at a moment's notice, therefore, to stage an attack, and has convinced herself that the dramatization is real and that she will soon die.

Fainting—Fainting, a loss or partial loss of consciousness, does not mean heart disease. It may occur under strain or excitement or fear and results when the blood supply leaves the brain and flows out into the blood vessels elsewhere, chiefly to the network of veins inside the abdomen, which is temporarily dilated. In a young person the heart is probably never the cause. In an arteriosclerotic person, fainting is occasionally due to a circulatory disturbance in either heart or brain.

Palpitation—This is a consciousness of the heart beat. The heart may or may not beat faster or harder than normally, but the patient feels the beating himself. After unusual excitement and exertion anyone can feel the heart beat uncomfortably for a short time. The patient who is constantly under nervous stimulation or excitement feels his heart beat in spells and after the slightest exertion. But it is due to a sensitiveness of his nervous system and not to anything wrong with his heart, and he is in no danger of failure. Palpitation may occur in certain cases of irregularities of the heart and in cases of goiter, but it does not increase the seriousness of the situation.

Cyanosis—Blueness of the skin, especially of hands and feet, and sometimes of face and ear lobes, is shown most strikingly in congenital heart disease, and is present in certain of the valvular heart diseases, especially mitral stenosis, when compensation is failing. It is commonly present in tall young people who have grown rapidly, and is due to poor tone of the vasomotor nerves. It may last beyond the adolescent period. Cold, clammy, bluish hands and feet and a bluish mottling of arms and legs may suggest poor circulation to the patient who is likely to attribute it to some abnormality of the heart. Except in known heart disease with failure the condition is harmless and is likely to be outgrown.

Murmurs—These are sounds, caused by eddies in the blood stream, heard over the heart with the stethoscope. Murmurs are heard in valvular disease, but are also present in perfectly normal hearts. Medical judgment and experience are required to tell which are due to organic causes and which to functional. Even a valvular murmur may be harmless if the heart is well compensated, and sometimes the smallest and least important leakage sets up currents that bring about an exceptionally loud murmur. A patient should not feel either frightened or doomed if a murmur is found, perhaps on an insurance examination, but should go to a sensible physician to get an estimate of its significance. Comparatively few murmurs mean heart disease and the only harm they do is to frighten the patient.

Irregularities—Irregularities may or may not be serious. Occasionally an introspective patient will count his pulse and find that his heart slows and speeds up again every few seconds when he is resting and the rate is low. This is a normal irregularity and varies with the phases of respiration.

Another patient may say that he feels his heart give a jump or a flop and then go on regularly again. The pulse feels as if an occasional beat were left out. This is known as an extrasystole or premature beat and indicates an increased irritability of the heart muscle but is of no serious import. It may be annoying and uncomfortable, and is a good reason for looking for digestive or toxic causes, such as flatulence (gas) or too much tobacco, but it is not a sign of heart disease.

Occasionally a patient will have a sudden attack of rapid heart rate, known as paroxysmal tachycardia, as a result of a series of such beats originating in an abnormal point in the heart muscle.

Auricular fibrillation is a total irregularity of the heart action accompanying heart disease or goiter which may be serious in its more rapid stages. It can usually be controlled and slowed down in rate by digitalis medication.

Heart block is a rare but serious disturbance in rhythm. The rate may suddenly drop to twenty or less beats per minute, or may come to a permanent stand-still.

Pain—In a young person pain in the heart region may indicate gas, intercostal neuritis, nervousness or a dozen other things, but not heart disease. In a person at middle age or past it must be considered serious until it is proved harmless, especially if it comes on after exertion.

Arteriosclerosis of the coronary arteries, either as angina pectoris or as shutting off a branch by a thrombosis (clot), is a frequent cause of pain under the sternum and over the heart *and a good cause for caution in carrying on a dental procedure involving strain.*

Dyspnea — Breathlessness (dyspnea) may be noted on exertion by the cardiac patient as an early sign of failure and go on to the hopeless struggle for breath of the advanced stage. On the other hand, air-hunger and deep sighing are usually interpreted by the patient as evidence of heart disease, but really mean only a state of nervous unrest. Sometimes a deep breath exhaled into a spirometer, an instrument for measuring vital capacity, will prove to the patient that he is able to get a normal amount of air into his lungs and that he couldn't possibly stop breathing if he tried to.

Edema—Dropsy (edema) is a late and serious stage of heart failure. It is usually seen in the ankles first as an accumulation of fluid in the tissues so that pressure with the finger or a tight shoe strap leaves a pitting or depression. Later it involves the internal organs (lungs, liver, brain, and kidney) and the soft tissues throughout.

A patient in this stage of heart failure is not likely to have extensive dental work undertaken, but if extraction must be done for relief of pain there is no immediate danger involved. However, the absorption from the socket may cause much more reaction than in a healthy person, and may be just the added straw that overloads the failing heart.

Examination

The patient who has, or thinks he has, heart disease either has had, or will have, carried out diagnostic procedures that he will want to talk over with his dentist or his dental hygienist for sympathy, information, or advice.

The good doctor still gets most of his information from asking the patient questions and observing and weighing the material obtained and from the way the patient himself looks and acts.

The more modern methods of diagnosis give much added information and correct or modify the impressions previously gained. Percussion (tapping with the finger to bring out the dull sound made by the heavy muscle of the heart in relation to the air of the lungs) tells the shape and size of the heart. Auscultation, listening with a stethoscope, gives the quality of the heart sounds and detects the presence of murmurs. Feeling the

(*See chart on next two pages*
Text continued on page 225)

COMMON SENSE ABOUT HEART DISEASE

I. ACTUAL DISEASE OF THE HEART { PERICARDIUM (Covering); ENDOCARDIUM (Lining, including valves); MYOCARDIUM (Muscle) }

due to

A. Infections

1. Rheumatic fever
2. Chorea

} the end-result of which is valvular disease, with

a. Leakage (regurgitation or insufficiency), or
b. Partial closure (stenosis)

3. Syphilis: attacks aortic walls: causes
   a. Leakage of valve, or
   b. Bulging of aortic wall (aneurysm)

or

B. Degenerative Processes

1. Hypertension (high blood pressure)
   a. Reduces blood supply to heart muscle
   b. Requires heart to pump harder
2. Arteriosclerosis (hardening of the arteries)
   a. Generalized
   b. Angina pectoris
   c. Coronary thrombosis

II. HEART TROUBLE { SYMPTOMS DUE TO FUNCTIONAL, NOT ORGANIC, CAUSES; PRODUCED BY ILLNESS, FEAR, WORRY: HEART IS NORMAL }

A. Hyperthyroidism: may develop into *serious heart injury*

B. Systemic Infections, such as tuberculosis, which may cause

1. Palpitation
2. Rapid heart rate

} which do no harm to the heart itself: only the underlying infection is serious

C. Severe Anemia: if prolonged, may lead to permanent changes in heart muscle

D. Effort Syndrome (neurocirculatory asthenia): heart not diseased: patient handicapped by

1. Rapid heart rate
2. Palpitation
3. Pain over heart

} occur after excitement, exertion, fatigue

III. SYMPTOMS OF HEART DISTURBANCES

A. Fainting (loss or partial loss of consciousness)

1. *Does not indicate heart disease*
2. Occurs when blood leaves brain
3. Result of
   a. Strain; excitement; fear
   b. Circulatory disturbance in arteriosclerotic person

B. Palpitation (consciousness of heart beat)

1. *Does not indicate heart disease*
2. Occurs in cases of
   a. Goiter
   b. Irregularities of heart
3. Due to sensitiveness of nervous system: nervous stimulation

C. Cyanosis (blueness of skin)
   1. *Harmless except in known heart disease with failure*
   2. Occurs in cases of
      a. Congenital heart disease
      b. Valvular disease (mitral stenosis)
      c. Poor tone of vasomotor nerves
      d. Poor circulation

D. Murmurs (sounds heard over heart)
   1. Rarely indicate heart disease
   2. Present in
      a. Valvular disease: harmless if heart is well compensated
      b. Normal hearts
   3. Due to eddies in blood stream

E. Irregularities, such as
   1. Irregular pulse rate: varies with phases of respiration; is a normal irregularity
   2. Extrasystole (premature beat): *not serious*
   3. Paroxysmal tachycardia (sudden attack of rapid heart rate)
   4. Auricular fibrillation (total irregularity of heart action)
      a. *May be serious in more rapid stages*
      b. Accompanies
         (1) Heart disease
         (2) Goiter
      c. Can be controlled by digitalis
   5. Heart block (disturbance in rhythm): *rare but serious*

F. Pain: indicates
   1. In a young person
      a. Gas
      b. Intercostal neuritis
      c. Nervousness
   2. At middle age: *serious unless proved harmless*
   3. Arteriosclerosis of the coronary arteries
      a. Angina pectoris
      b. Coronary thrombosis

G. Dyspnea (breathlessness) and Deep Sighing: indicate
   1. In a cardiac patient: failure
   2. In a normal person: nervous unrest

H. Edema (dropsy or accumulation of fluid in tissues): *late and serious stage of heart failure.*

IV. EXAMINATION

A. Information solicited from patient by questioning
B. Percussion
C. Auscultation
D. Feeling pulse
E. Blood pressure determination
F. Fluoroscopic examination
G. Electrocardiographic tracings
H. Ophthalmoscopic examination of retina of eye

V. CARE AND TREATMENT

A. Reduction in weight
B. Increase in nutrition
C. Correction of digestive disturbances
D. Anesthetics do no harm to heart (exception: adrenalin) in arteriosclerosis
E. Stimulants
   1. Aromatic spirits of ammonia: quick stimulant
   2. Amyl nitrate: for patient with angina pectoris
F. Aspirin does no harm to heart

A RESTRAINING APRON

FOR USE IN NITROUS OXIDE ANESTHESIA*

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At the present time straps are used in dental general anesthesia as a means for controlling so-called fighters in the excitement stage. Their use is dangerous, and for this reason I have developed for my practice what I call an anesthesia apron. It is made of a strong upholstering material and when placed over the patient binds him to the chair in such a manner that any attempt at disorder is impossible. It is easy to apply, requiring only a few seconds, and is easily removed in case of the necessity to use artificial respiration.

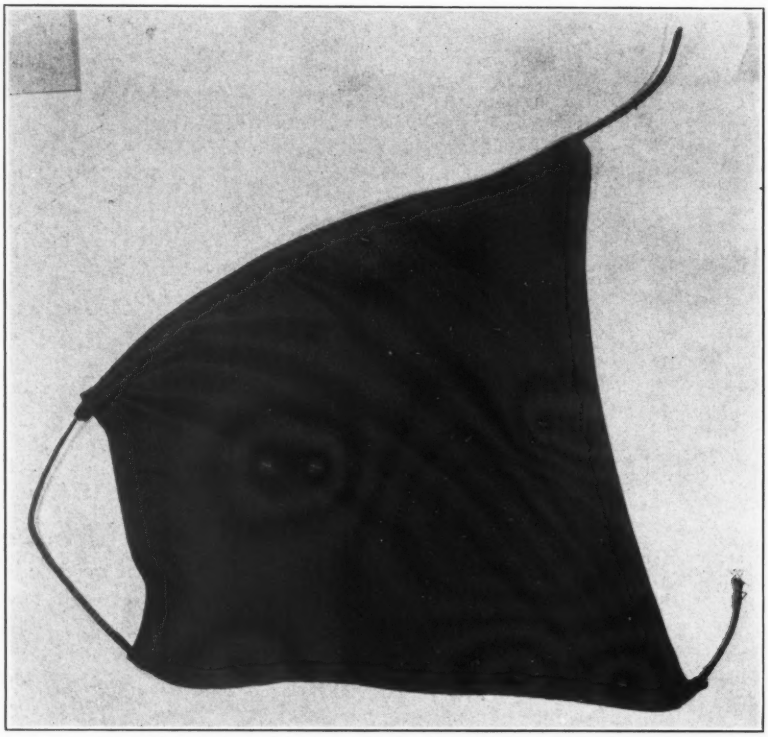

Fig. 1—The apron is shown spread out. Note the semilunar sides to prevent wrinkling of the apron when placed over the patient. These sides are hemmed and are reenforced at all corners. Through this hem a strap is passed and made continuous, coming back through the hem on the other side.

How to Apply the Apron

The patient is placed in the chair and the entire chair is tilted back. This tilting not only prevents the patient from slipping down but also forces him to place the calves of the legs against the back part of the foot rest. This position facilities the application of the apron. The apron is applied by slipping the loop under the foot of the chair and bringing the loop as far back as possible so that it is behind the inclined part of the foot rest. The apron is spread over the patient, enveloping him and the arms of the chair.

The apron can be tightened at will. When the strap is tightened, it will be noticed that there is a general tension throughout the entire apron.

The apron should not be removed until the patient is thoroughly awake, because most of the excitement of the patient is manifested in the so-called coming out period. This excitement is a reaction of the dreams that the patient had while anesthetized.

In case of any need for artificial respiration the strap is unbuckled in back, the apron is thrown forward, and the patient is free.

*Presented before the Society for the Advancement of General Anesthesia in Dentistry, New York, N. Y., February 29, 1932.

Advantages

The advantages of the apron over the strap are:

1. No black and blue marks result.
2. No ripping of stockings on women.
3. Elimination of possible fracture of arms or legs.
4. Easy application and removal in case of emergency.
5. Better psychologic effect on the patient.
6. Helps to protect the clothing from blood.
7. The apron may be covered with a rubber sheet to make it washable.

Conclusion

The apron should be used whenever gas is to be administered. It is that one out of a hundred patients who may cause trouble. The apron should not be used instead of the anesthetic. The patient should be properly anesthetized first. The apron is used only as a preventive measure.

Fig. 2—The apron applied on the patient.

COMMON SENSE ABOUT HEART DISEASE

(Continued from page 221)

pulse gives information about the rate and rhythm of the heart and the condition of the blood vessel walls.

Blood pressure determination is important, but it is so common a part of general conversation, so much overestimated in importance, and so frequently misinterpreted that one could wish for a law against taking it except in the most desperate case. The figures vary so much between persons and in the same person under different circumstances that it is impossible to set a definite figure as normal. Two readings are taken into account, the systolic pressure, which is the high reading made during the height of pressure in the arteries, and the diastolic, representing the tension in the arteries between heart beats. A systolic pressure of 150 or above and diastolic of 100 or above are considered abnormally high. Low pressures are relatively unimportant except in the course of a severe illness. The blood pressure in most people is higher on the first examination and drops as the patient gets over his anxiety.

Fluoroscopic examination gives information about the size and shape of the heart and aorta, and electro-cardiographic tracings record the condition of the heart muscle. Examination of the retina of the eye with an ophthalmoscope, which throws a beam of light through the dilated pupil, shows the blood vessels as they are, and gives valuable information, especially in hypertension and arteriosclerosis.

Care and Treatment

Most important is an intelligent understanding of the underlying condition and an honest explanation to the patient to reassure him and to get his confidence. It is impossible to undo the harm already done by infection and degeneration in a heart muscle or valve. All efforts should be directed toward stopping further progress by removing as far as possible the load of infection, strain, and fear. Reduction in weight is important, especially in the elderly and obese, and increase in nutrition in the young and asthenic. Digestive disturbances should be corrected by proper habits of eating, eliminating, and thinking.

Anesthesia is a constant source of fear to the patient who has either heart trouble or heart disease. As a matter of fact, an anesthetic does no harm to the heart. Epinephrine (adrenalin) should be avoided in hypertension cases, but otherwise there are practically no dangers except the patient's own fears.

Aromatic spirits of ammonia is a quick stimulant that should be kept in the dental office, and amyl nitrate may be inhaled by the occasional patient with angina pectoris. Acetylsalicylic acid (aspirin) does no harm to the heart although there is a widespread fear of it because of the uncomfortable sensations that it produces in some patients.

Patients are prone to grow discouraged with the conservative attitude and treatment of the honest physician and turn to quacks who promise by rubbings or snappings or electricity or prayers to dissolve away the scar tissue in heart valves or muscle.

DENTAL ASSISTANTS AND SECRETARIES

ELSIE GREY

Have you a particular method, or have you a time saving short-cut that lightens the work or makes for greater efficiency in the office? You may help many who are beginners—and you know how you needed help during your first few months in a dental office. Perhaps you need help now. Write to Elsie Grey—she will help you.

QUESTION—I have recently become a dentist's assistant and as I have never had any previous experience and training find some things rather difficult. What bothers me mostly is how to greet the patients and carry on a conversation with them. The articles in THE DENTAL DIGEST have been very helpful. I am anxious to learn. Will you please give me some information useful to a beginner.

ANSWER — The assistant should greet the patient pleasantly and with dignity. One should never be effusive either in her greeting or possible conversation. An assistant should never hold a lengthy conversation with any patient. She is not in the office to entertain patients or callers, but can do much through a silent, cheerful deportment to put them at ease. Some patients are inclined to gossip. The assistant falls an easy prey to their curiosity about the dentist, his family, his patients, his fees, and even his politics and his religion, if she allows herself to be drawn into conversation.

Beyond a pleasant "good morning" or "good afternoon" and a discreet remark about the weather, or inquiry about a child, or a relative, or a friend who is ill or convalescent, the assistant should allow patients to take the lead in conversation. If they should converse at length or ask personal questions, the assistant should tactfully excuse herself. A natural ease of manner at all times and a pleasant attitude will carry you over the most difficult day's work. Do not be impatient; it takes time to learn how to become an efficient assistant.

QUESTION — I am a beginner in dental nursing and would be glad of any help you can give me.

ANSWER—It is difficult to make suggestions without knowing the specific help you need. Every dental office has its own requirements accord- to the type of office; the specialty practiced, if any; the class of patients; the locality, and many other factors. In some offices the assistant's work is confined to the operating room and dental chair-side assisting. In others, she not only does the chair-side assiting but helps in the laboratory, does x-ray work, acts as secretary, looks after the general appearance of the office, and purchases the supplies.

You might familiarize yourself with the requirements of service at the chair by careful observation of the dentist's procedure as well as the needs of the patients. The office should always be kept in order and attractive. Careful sterilization of the instruments and all that is used daily, such as linen, bracket tables, glassware, and handpieces, is important. Intelligent and pleasant telephone usage will aid the dentist. Some simple laboratory aids should be learned, such as mixing plaster, heating wax or compound, preparing all the materials needed for mixing cements and silicates, if not the actual mixing—all these cannot be learned in one day; it takes time and application.

All available literature on dental assisting should be read. It would be well to join the society for assistants in your locality and attend all their classes and clinics and lectures. Secure the cooperation of your employer to attend demonstrations at the dental supply houses on the proper manipulation of cements, alloys, porcelains, inlay techniques, waxes, model compounds, plasters, artificial stones, sterilizers and other equipment. Likewise, instruction in various types of bookkeeping and record keeping.

QUESTION—Will you please suggest a form letter or card to be used as a reminder for patients who have not been in the office for some time?

ANSWER—When the dentist has a secretary the use of personal letters, which can be composed for each individual case, is preferable. Patients enjoy a personal touch in their correspondence, especially if they have been patients of long standing. The following, however, may be embodied in a personal letter or used as a printed form:

Our records indicate that ..... months have elapsed since your last visit to our office for dental care. Periodical prophylactic treatments promote good health, and periodical examination of the teeth is economy and maintains health and appearance. We suggest that you telephone us for an appointment.

Respectfully yours,

For a patient who is on the "reminder list" by request:

Complying with your request that we notify you at the end of a six months' period that you are due for an examination and prophylactic treatment, we have reserved ..... at ..... for an appointment. Kindly notify us if this is not convenient and we will arrange for a more suitable time for you.

FLAMING OF PLATINUM HYPODERMIC NEEDLES

One of our readers makes the following suggestion:

When platinum needles are flamed, care must be taken not to allow the needle to be placed in the carbon part of the flame as this will cause the needle to become brittle. The needle should be placed in the *point* of the flame.

QUESTION—Is it correct for an assistant in a dental office to wear a cap similar to the one worn by a registered nurse? Also, what is your opinion of correct dress for a dental assistant?

ANSWER—It is quite correct for an assistant to wear a cap, but she should not wear *the cap* adopted by any particular hospital or nurses' training school for its graduates. There are many styles of caps that can be bought in any department store; select one that is appropriate and becoming and wear it if you choose or if your employer wishes you to do so. There is no legal bar to the wearing of a cap by anyone provided she does not infringe on the type that has been adopted and perhaps patented by an institution as a part of its uniform.

The correct dress for a dental assistant is a simple, straight-line, white uniform with long sleeves and high neck if preferred, or turn-down collar, complemented by white hose and low-heeled, white shoes. No jewelry should be worn, and little rouge, if any, used on lips or face. The hair should be well groomed, also the hands and finger nails, but no red enamel should ever stain the nails.

TECHNIQUE

"THE ATTRIBUTE OF A MASTER"

Of what use is unusual ability in the construction of dental bridgework, if the quality of the products and materials used is not commensurate with the skill of the Technician?

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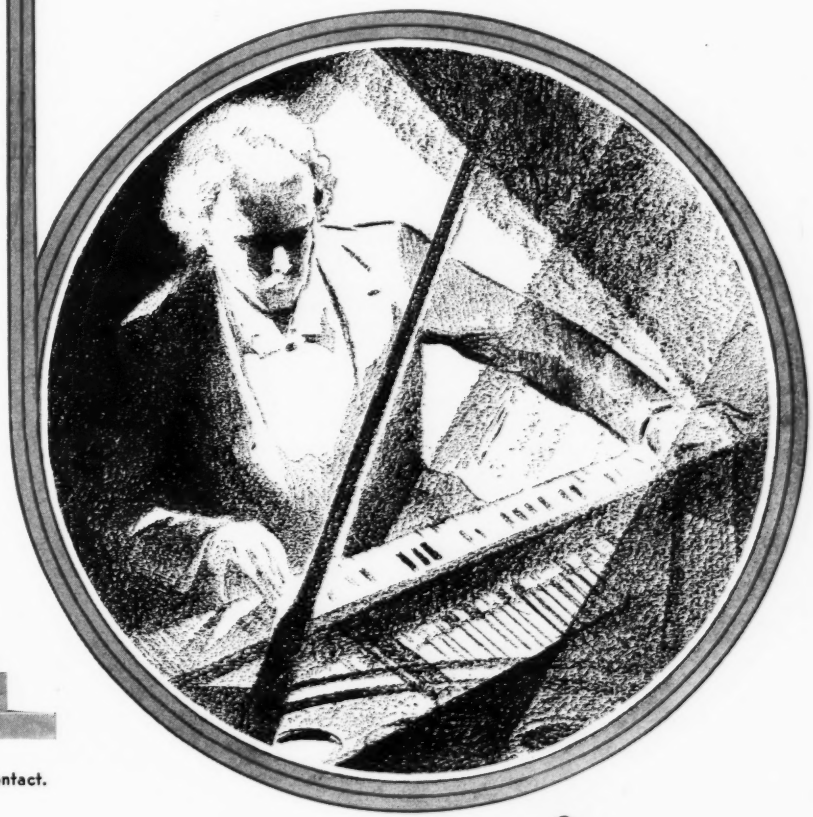

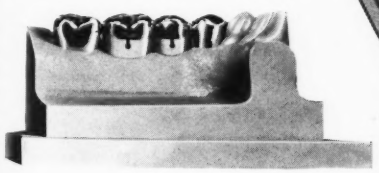

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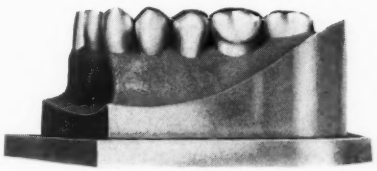

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LETTERS

Permit me to congratulate you upon your new dental magazine. It is one of the best dental magazines I have ever seen. Your color plates and clear illustrations are very fascinating and interesting. I trust that THE DENTAL DIGEST will be as popular as *The Literary Digest*.—P. W. CHUNG, D.D.S., *Hanapepe, Kauai, Hawaii*

I have done something I never did before in fourteen years of dental practice—felt concerned about and did quite a bit of searching around the office for the March and April issues of the DIGEST. I read my journals, but the originality and instructiveness of your new magazine make me appreciate more than any other journal the value of your publication.—JOSEPH G. ALBERT, D.D.S., *Orange, N. J.*

I feel I must compliment you on this journal. It is a beautiful innovation and I expect to keep every copy.—E. P. MORIARTY, D.D.S., *Pittsburgh, Pa.*

The new DENTAL DIGEST certainly opens a new era in dental literature. It has always been my contention that surgery, in any of its branches, cannot be taught by mere text or theory. The illustrations and the large print give your publication a unique distinction over all other dental magazines, including the old DIGEST. A particular feature of note is that it deals with a few subjects concretely rather than many abstractly.

The magazine lacks dryness and does not become boresome. One can read it from cover to cover and regret that there is no more. The advertising department should not be passed without a word of praise. Good taste is shown in the selection of advertisers and one is not burdened with a superfluity.—J. M. WOODLE, D.D.S., *Brooklyn, N. Y.*

I am glad to congratulate you on THE DENTAL DIGEST. It is surely the best dental magazine published. It is indispensable to any good dentist.—A. BEDARD, D.D.S., *St. Hyacinthe, Canada*

I want to congratulate you on the late issues of your magazine. It is put up in such an attractive way and your treatises on up-to-the-minute subjects make it more interesting reading. The colored illustrations are very realistic. The future dentist must be more than a manual worker. —CHARLES C. NORRIS, D.D.S., *Oshkosh, Wis.*

Allow me to congratulate you and your associates and, incidentally, thank you for your splendid magazine. In my opinion the cover design, quality of paper, general mechanical makeup, and plates and pictures are most helpful and instructive. My patients have greatly appreciated seeing the plates and pictures, especially those on pyorrhea surgery in the January issue. I like the size of the book because it can be laid out flat on a table or desk and one can really be comfortable while studying its contents.—WILLIAM E. SMITH, D.D.S., *Hamilton, Ohio*

I enjoy reading the new DENTAL DIGEST and find that the articles in it are written in a simple, clear, and concise manner which makes for very interesting and profitable reading. I certainly would hate to miss any copy of this magazine.—BENJAMIN BRESLER, *Philadelphia*

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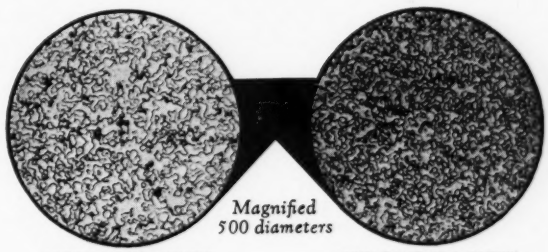

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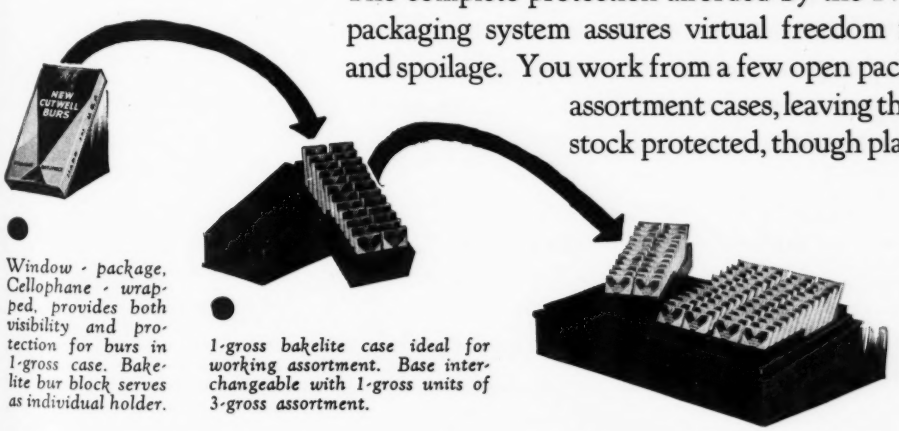

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ABOUT OUR CONTRIBUTORS

OLGA S. HANSEN, of 1009 Nicollet Avenue, Minneapolis, Minnesota, took her B.S. in 1913, and her M.D. in 1915, at the University of Minnesota. Doctor Hansen's practice is limited to internal medicine. She was formerly Assistant Professor of Medicine at the University of Minnesota and is now Consultant in Cardiology at The Glen Lake Sanatorium. Doctor Hansen is a member of the A. M. A. and component societies, American College of Physicians, and the Minnesota Society of Internal Medicine.

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The illustrations for Mr. Schaefle's article were specially prepared by Melville Steinfels of THE DENTAL DIGEST art staff.

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DENTAL DIGEST readers will be particularly interested in the new textbook, *Dental Oral Surgery*, by Wilton W. Cogswell, D.D.S., F.A.C.D., as it is written and illustrated in the manner of THE DENTAL DIGEST. See pages 228-229 of this issue for more complete information.

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